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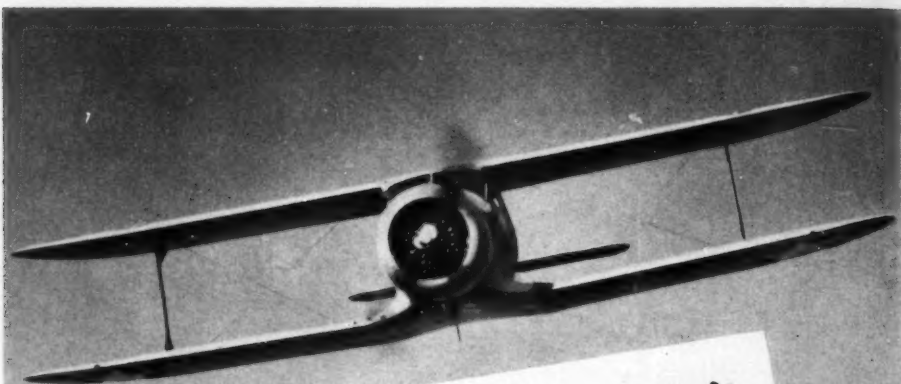
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AIR TRANSPORTATION'S COVER

"Crossroads of the world! At Miami, Flight 10 is loading passengers, mail and express for points across the U. S.—for Canada, Alaska and Australia. A transport plane in war paint is coming in, with people and cargo from India, Africa and South America."

Thus Air Transport Assn. begins one of its striking recent general magazine ads, illustrated with the painting reproduced on the cover with the association's permission.



Beechcrafts at work



The Beechcraft biplanes had been tested in service prior to the war in 23 foreign countries and in all parts of the United States. The operations in which they were engaged extended from Aklavik, north of the Arctic Circle, to Little America on the Antarctic Continent, and included all variations of climate, terrain, and usage. They operated with wheels, seaplane floats, and skis. Their owners were enthusiastic about their performance under all conditions.

With the advent of war, most of the civilian-owned Beechcraft biplanes of recent manufacture were taken over by the Government Services and the entire new production of the factory went directly to the Army and Navy. These Beechcrafts now serve as the aerial workhorses of our Air Forces, not only at home but also behind our far-flung battle fronts. Their high cruising speed, of up to 200 miles per hour, plus their ability to land at low speed in small, improvised fields, makes them a practical and useful vehicle for everyday use. Their ruggedness of construction reduces the necessity for spare parts to a minimum; and their economy of fuel consumption is valuable where fuel is hard to get.

Eventually these airplanes will be available again to civilian users and the experience gained in military operations will make them more valuable than ever. We regret that we cannot fill the orders of our many friends until the end of the war.

Beech Aircraft

CORPORATION

BEECHCRAFTS ARE DOING THEIR PART



WICHITA, KANSAS, U. S. A.

You, Too, Mr. Shipper, Have A Huge Stake In Postwar Air Planning

*Don't Let Politics Keep You
From Learning and Acting Now,
Warns Republic's Ralph S. Damon*

AIR TRANSPORTATION has no special axe to grind for the aviation industry—either the aircraft-making or the air transport end of it. But it is becoming more and more certain that every shipper, every present and future user of the air for carrying goods, must admit that he, too, has a stake in what happens to the aviation industry in the very near future. It can even be said that every citizen, every voter, has a stake almost as big.

One of the ablest recent outlines of this incredibly vital situation was given by Mr. Damon recently in an address—not to an audience of airmen but to the Sales Executives Club of New York. He here explores the same subject for the readers of AIR TRANSPORTATION. *March 16*

By RALPH S. DAMON
President, Republic Aviation Corp.

MANY people have climbed out on limbs in the course of discussing postwar America and the postwar world. In fact, the trees are so full today that I find it difficult to secure a limb for myself.

I realize that devoting time to the topic of postwar activities and conditions today invites criticism from those who say, "Why so much postwar talk when we still have a war to win?" I agree fully that while victory is certain there is much hard and long work to do and bad news to take and that nothing must interfere with our winning of the war.

I am assuming that with the proper dedication of ourselves to such hard work and bad news the war will have been concluded by the end of 1944. The ending will be due largely to the overwhelming preponderance of the aviation effort on the part of the United Nations who are now producing superior types of fighting planes in ever superior numbers. Currently we are out-producing the Axis in aircraft at the rate of three to one and that

ratio will be further increased before mid-summer. Combat box-scores attest the superiority of our airplanes and the high quality of the fighting men who man them.

As executives your interests center around the concrete rather than the abstract. I will attempt to give you as concisely as possible my opinions as to one very definite and extensive change aviation's part in this war will bring about.

The Author

Today the broad shoulders of Ralph S. Damon of Republic Aviation Corp., carry one of the most important burdens of the national defense program. As executive head of the company which is building the squadrons of mighty P-47 Thunderbolt interceptors, he faces accomplishment of a great task.

He has served as vice president and president of Curtiss-Wright Airplane Co. and also as president of Curtiss Aeroplane & Motor Co. In 1936 he moved to the operation vice presidency of American Airlines.

On May 1, 1941, Mr. Damon was elected to his present post.



Ralph S. Damon

There will be important basic changes in the living habits of this country produced by the development of the airplane in the course of this war. These basic changes may be as great or greater than those produced by the automobile, railroad or canal, or all put together.

The automobile and the good roads program which made it possible drastically revolutionized small town life. After this war, the airplane is going to change big city life just as drastically and do something far more important—it will change small world life. What the good roads did for the automobile, the new military air fields will start to do for the airplane.

We now have 25 times as many good airports as we had before the war. Many of them are in remote places but after this war those places won't be remote any more.

Postwar Plans Must Come Now

Not as an apology but as an explanation I point out to those who have wondered why so much postwar talk before peace has come again, consideration of postwar problems and conditions is vitally necessary for the aviation industry at this time if we are going to prevent a repetition of the situation which existed from the close of the last war to 1939.

If I may make you unhappy for a few seconds I would remind you that there were too few men then in the high seats of our government capable of comprehending the

potentialities of aviation. For a full appreciation of those potentialities it requires some faint semblance of imagination and unfortunately imagination has never been one of the prime requisites of a politician.

Today, while aviation enjoys the blessing of being the fairhaired child of all the war industries, we in aviation are determined that there shall never again be a recurrence of the conditions which existed prior to 1939. We are not crying in our beer but are simply positive that if America is to have protection of air power, our aviation industry must never again be viewed with simply mild detachment.

It is shocking to recall but it is a fact that for eight years prior to 1941 we did not have even Assistant Secretaries of War and Navy for Air. It sounds fantastic but it is true, as many of the men at this table can tell you, that early in 1939 some of the leading aircraft and engine companies were devoting much of their time and effort seeking new orders while they were just two steps ahead of the sheriff.

In retrospect it is all very ironical. Here was the country which gave the world the airplane, here were the world's greatest aeronautical engineers and production men, yet as a nation there was not the faintest trace of a national air program. For years it was possible to count on your fingers the men in Washington who had some conception of the military and commercial power of the airplane. That was the picture of the manufacturing side of aviation in 1939. It wasn't at all bright.

Air Transport Was Unprepared

The picture of the other phase of aviation—transport—was better but not good. While we had the world's best equipment, transport development in this country presented a paradoxical and sorry picture. Our various airlines, headed by capable executives and backed by good staffs were being hamstrung by unimaginative men in Washington—men who refused to concede that a strong forward policy for aviation was necessary.

In 1938 the Civil Aeronautics Act was passed by the Congress establishing the Civil Aeronautics Authority as an independent agency, and as such it appeared to be making excellent progress until, by executive order this agency was again subjugated to the same cabinet office from which it had been emancipated by the act of Congress. Since this subjugation the Civil Aeronautics Board appears to have forgotten that by the act of Congress it was created to "foster and develop," and has confined itself almost exclusively to the regulatory type of hamstringing regulations, which older and more respected agencies would hesitate to undertake.

It would appear that the Board is composed of gentlemen who, while personally estimable, are endeavoring to prove that a committee is a group of men who individually can do nothing but as a committee can decide that nothing can be done.*

Such stupid orders have been issued as ones recapturing essentially all the profits since the beginning of organization up to the given date of individual airlines, and while it is true that public indignation was so great that these orders have been modified so far as these particular recaptures are concerned, the Board has never conceded its error in stating its principle in the first place. Another order issued as recently as this current month requires a certain airline to cut its promotion expenditures by 64 per cent! In other words, the Board, instead of remembering the words of the Act which created it to "foster and develop," is endeavoring to become the mother-

in-law to determine how many handkerchiefs you put in your pocket every morning.

Non-Flying CABer Scored

Perhaps an explanation of such rulings lies in the typical fact that the most recent presidential appointment to this Board is a lame duck Senator who, it is reliably reported, never has been in an airplane, never has flown up to the present time. When such a man becomes a member of the regulatory body which can and has issued orders recapturing profits and delves into details of expense we appear to be having today the same difficulties as Shakespeare's time, to which he so ably referred to as "insolence of office."

Because the cries of the aviation industry which have gone into the wilderness of Washington had not been answered, our airlines had, at the time we entered the war, only approximately 350 transport planes.

So we in aviation are determined that constructive plans for our industry's place in the postwar world must be discussed now as well as later when the world leaders prepare a peace treaty. Never again will American aviation strive to prosper on a confused air policy, since—I believe—certain elements of the Administration and the Army and Navy are now fully aware of the shortsightedness which was so rampant less than three years ago.

Again to those who protest against continued discussion of the postwar era, I point out that certain basic plans must be made now by any aircraft company intending to survive the changeover from war to peacetime operation. Unless this is done now, the time lag necessary for development and operation would be practically disastrous when viewed competitionwise.

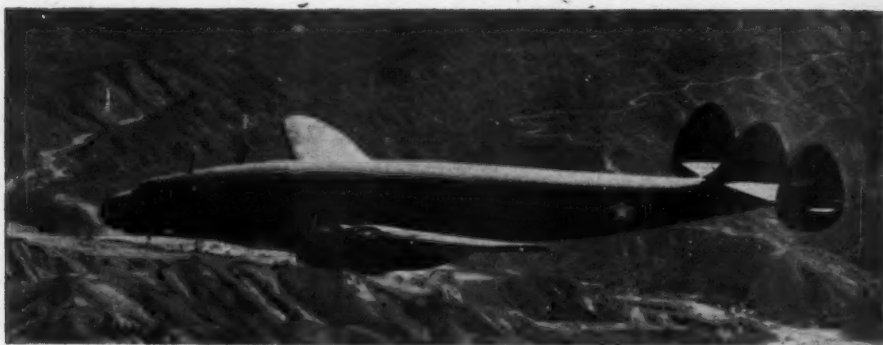
It takes fully two years and frequently more in the development of important type aircraft. This means that should our industry refrain from making any advance plans until the last enemy plane has been shot down, you and your friends who ordinarily use the airlines would of necessity in 1945 be flying in 1939 equipment. Do you believe that immediately following the war any other industry is going before the public with antiquated products? Neither do I.

One of the most encouraging signs for the development of aviation in the postwar world is the indication that our own State Depart-

* Chicago & Southern Airlines.

‡ Pointed out *Fortune* in its able article on "The Logic of the Air" in its April issue:

"Any journalist who digs into this air question is impressed by a negative but vital fact: that outside the professional airmen, whose thinking is strongly colored by self-interest, few high government officials have any real knowledge of the problem, or any deep conviction's on what American air policy should be"



WILL POSTWAR AMERICA have the advantage of modern superliners like the Lockheed Constellation? Mr. Damon is afraid not, unless people start making plans now for postwar air transport development

ment is now developing an air policy program which is to be discussed at the United Nations meeting on postwar problems which may be presumed to be going on at this very moment.

Policy Committee Incomplete?

However, there is one aspect of such planning by the State Department and the U. S. Committee on International Aviation Policy which is not healthy. I refer specifically to the composition of the committee.* I cannot quarrel with the brilliance of thought contained in the membership which is certainly distinguished, but I do protest against the failure to include on this committee representatives of the manufacturing and transport groups of aviation. In other words, there is a tendency for government, through a committee composed of representatives of the various governmental departments, to create and possibly establish a policy and at the same time commit the aviation industry to it without

* The committee: Assistant Secretary of State Adolph A. Berle Jr., Assistant Secretary of War for Air Robert A. Lovett, Assistant Secretary of the Navy for Air Artemus L. Gates, Undersecretary of Commerce Wayne Chatfield Taylor, Civil Aeronautics Board Chairman L. Welch Pogue.

Says the April *Fortune* of them: "Although influential, none of these men has a statesman's prestige."

Says *Fortune* of the meeting which, Mr. Damon says, "may be presumed to be going on at this very moment": "But in England on Feb. 17, Mr. Anthony Eden informed Commons that no discussions concerning the postwar air were under way with any Government. High government officials in Canada also denied that negotiations were

first seeking advice and counsel. If the aviation industry is to fly passengers and cargo to and from foreign countries under such agreements, it is only just that the industry's guidance be sought now, when these agreements are being developed for presentation.

There is another phase of the value of postwar discussion at this time by the aircraft industry and I believe that phase is unique insofar as the other industries are concerned. All of you are conversant with the expansion and growth which the aircraft industry has undergone. Companies whose manufacturing units occupied space comparable to this room now have more floor space than is contained in this entire hotel. Most of them have multiple plants located in all sections of the U. S.

Needless to say, employment in the industry skyrocketed. We have taken in men and women of all ages and from all occupations, trained them and developed them into competent aircraft workers. They number hundreds of thousands. The majority of them are as aware of what the pre-war aircraft manufacturing situation was as you are. Naturally, they are justified in whatever doubts they may have as to their chances of employment in their recently learned trades after this war, so it is my belief that if the management of various aircraft companies can indicate to the men and women in the industry that they—management—are giving serious and sincere thought as to what the industry will be producing in the peace, it will prove to be, next to attempting a quick and positive victory, the greatest of all morale builders for our workers.

If the aviation industry is to continue to

prosper, the setting of its sights at this time is no at all premature. As an industry it has a responsibility to all the people. It must strive to see that its existing industrial mechanisms are continued to maintain productivity far above the pre-war level and to provide employment for all who want to work. The industry will do this.

Air Cargo Future Appraised

Up to now I have painted somewhat of a dour picture. May I go on to another, but brighter, one. I am fully convinced that aviation with relation to the transportation of passengers and cargo and as a means of opening hitherto potential but inaccessible markets is to enjoy at long last an extended prosperity. The work has been made just so much easier by the Herculean job done in this war by the Air Transport Command, who should be given highest praise for the fine work they are doing.

Continents and markets for your products are no longer hedged in by barriers of oceans and mountains. They have now been reduced to distances measured by hours instead of miles. The importance of a city because it was a seaport has been eliminated. This will be because the aircraft manufacturers who are now building planes to secure freedom of the air will provide you with planes to make use of that freedom. The transport and cargo planes which will be available for your use almost immediately after this war are beyond the embryonic state. Their speeds and capacities are assurance that your chances in the competition with the merchants of any other nation for a foreign market are definitely equal. If you are at all skeptical of the aircraft to come, bear in mind that while it is a brutal manner of approach, this war is serving as a test laboratory for your peacetime flying. Most of the larger transport and cargo planes developed by Curtiss, Lockheed, Consolidated, Boeing and other aircraft manufacturers to fly war materials will be further enlarged and will be taking you or your goods to far-off points normally inaccessible to other forms of transport.

Huge Planes Around Corner

Aircraft manufacturers are no longer talking about 44-passenger airplanes. They are building or preparing to build planes carrying 100 or more passengers. Not more than two weeks ago, the president of Consolidated,

told of the mock-up of the 400-passenger plane his company is preparing. With such planes in the offing, it isn't unlikely that the air rates for passenger and cargo will be substantially reduced. With cargo rates, which have hitherto been almost heavy, similarly reduced, it is easy to see why your business and every industry in the country, through the sale of its products, will have a hand in changing the living habits of this country and the world.

I know now of certain postwar aviation plans and am confident that the possibilities for the transport and cargo plane are practically unlimited, except for possible political stifling. There can never again be distant places in the natural course of existence. It is easy to comprehend that when London, New York and Los Angeles are near together in terms of time, they will be much nearer together in terms of thought, habits, trade and understanding. The day is now not far off when we will be able to race the sun from New York to Los Angeles and not do a bad job—leave New York at noon and be in Los Angeles at 4:00 p.m., Los Angeles time. Going in the other direction, leave New York at 5:00 p.m. and get to London for breakfast. Leave London at eight in the evening and arrive at New York in the morning. It will take planes capable of cruising at least 400 miles per hour but as a result of what we have learned in this war those planes will be available.

I predicted in Boston in 1938 that weekends in Europe would be commonplace within 10 years, so you can imagine the lift I got from reading a dispatch in the *New York Times* only recently telling of the round-trip from North America to Europe made by one of our ferry pilots all in less than 20 hours. Because of the air travel Americans on business or recreation will move through Singapore, Buenos Aires, Rio and Moscow, and their citizens will be a part of our cities.

When it comes to the composition of our own towns, large or small, it is easy to see what will happen when the normal daily commuting distance to work may be stretched to 200 miles. The residential areas of the cities will then fan out in concentric circles. Naturally, this must bring about coincidental view-points and attitudes of city and country, of community and community. Through the airways of the future the understanding of America will be so broadened that it cannot help but temper the world. All this is possible practically—let us not allow bureaucrats to stop its consummation.



AIR CARGO

AS THE GOVERNMENT SEES IT

YOU HAVE ALREADY read in your newspapers, no doubt, the highlights of OWI's June 7 report on the Air Transport Future. But here in AIR TRANSPORTATION, the Editors bring you the entire report . . . nothing added, nothing deleted. In it you will find much fancy boiled down to cold fact. But you will be just as thrilled by the reality of things actually accomplished so far. To help the reader in visualizing the major cargo-carrying planes of today and tomorrow, AIR TRANSPORTATION publishes photographs of nearly all of them. Under each photograph appears the official text of the OWI report applying to the plane illustrated. Most of these planes you have already seen illustrated in AIR TRANSPORTATION's pages, but never before have you had the practical facts that accompany the pictures so fully detailed.

THE Office of War Information this month issued a report covering all phases of American air transport at the present time. Among the facts brought out in the OWI report are the following:

1. The Army Air Force Air Transport Command alone is larger than all air transport organizations, civilian and military, in existence all over the world before the war.
2. The Naval Air Transport Service and the commercial air lines are also carrying great quantities of cargo and great numbers of personnel, chiefly of a



Tomorrow

Official OWI Release Discloses Many Previously Unknown Facts, Catalogs All Cargo Craft

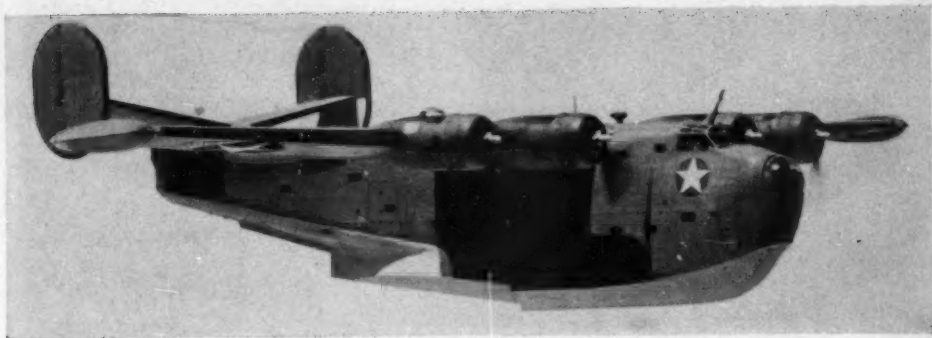
military nature, and all operations are steadily expanding. The number and length of air routes flown increase constantly.

3. These achievements are being made in passenger and bomber planes, many of both the older and the newer models of which have been converted for cargo-carrying needs. Not a single plane originally conceived solely to carry cargo is in service in the Western Hemisphere at the present time, although several are in the process of design and manufacture.

4. The Army and Navy air transport services have been greatly aided in their work by the activities, and by the personnel of the commercial air lines.

5. This great wartime expansion of air transport is being accompanied by a vast, world-wide development of air ways, communications, and airports which will be available to serve civilian air transport needs after the war.

6. During 1943 the total production of the American aviation industry—cargo and combat planes together—will reach the total of \$20,100,000,000, a fourth of our war budget for the year and almost a seventh of the estimated national income. This is in contrast with the automobile industry, which at its peak in 1941 reached only to \$3,700,000,000. About two and a half million trained workers are now turning out combat and cargo planes, and almost all airplane plants are capable of total conversion to the production of civil aircraft.



Official U. S. Navy Photograph

CONSOLIDATED CORONADO FLYING BOAT. A big patrol bomber, now being converted in quantity on Consolidated's production line for Navy transport duties. Navy designation as bomber PB2Y-3; as transport, PB2Y-3R. Along with the PBM-3R (below), it will be the Navy's principal transport plane. Its equipment includes a large cargo door, cargo flooring, and cargo handling facilities. Four 1,200-hp. Pratt and Whitney, R-1830 engines. Standard gross weight, 66,000 lbs., with cargo capacity of 20,000 lbs. on a 1,000-mile flight. Average cruising speed, 170 miles.

7. Nevertheless, the Civil Aeronautics Administration warns against extravagant claims on the subject of future peacetime air transport. High cost per ton-mile (not a prime consideration in military operations) and immense problems of refueling are deterrent factors, and it is unlikely that the "airplane will drive other forms of transportation out of business," as some aviation enthusiasts are inclined to prophesy.

The OWI report was prepared in consultation with the Civil Aeronautics Administration, the Civil Aeronautics Board, the War Production Board, the Air Transport Command, the Naval Air Transport Service, and other public and private organizations.

Perhaps the scope and the regularity of air transport today, most of its devoted of necessity to the needs of war, are best illustrated by the recent but already celebrated complaint of a young Air Transport Command pilot in Washington: "My laundry's in India—I can't get it till next week." A pilot on the Brazil-to-Africa run recently flew the Atlantic four times within three days. Another pilot recently crossed the ocean twelve times in thirteen days, making one round-trip in less than twenty-four hours. At ATC flying fields, self-assured youthful veterans of the Ferrying Division deliver to still more youthful beginners lectures studded with the names of distant cities and island bases, and with details concerning landmarks, airports, weather, communications, and other navigation aids. Together, the Army and

the Navy air transport services are now averaging several hundred trans-Atlantic flights a week alone, and the number is steadily increasing.

The measure of the value of wartime air transport lies not only in the bulk carried but also in the rapidity with which the stripped, camouflaged planes can complete each mission and be ready to start another. Large objects like light tanks and jeeps, for example, are transported across the ocean by air only in cases of emergency, and even in combat areas they are seldom loaded into planes. About the bulkiest objects commonly carried by air are airplane engines; these and plane parts of all kinds form some of the most frequent air cargoes at the present time. Speed is the keynote. An Air Transport Command plane recently flew from Australia to California in the record flying time of 33 hrs. 27 minutes. Medical supplies and blood plasma, things that are needed urgently, are flown to their destinations as fast as they can be got there. A complete hospital was flown to Alaska in 36 hours.

Planes which fly needed cargoes out to

combat areas and elsewhere return loaded whenever possible, often with strategic materials used in our war plants for the manufacture of goods which will be flown out in turn.

Block mica has been flown in from India. Planes have brought back platinum from the Persian gulf, beryl ore, quartz crystals, industrial diamonds, and mica from South Africa. Crude rubber has been air-freighted from Brazil, balsa wood from Central America. Twenty tons of rubber seeds were ferried from Liberia to the Western Hemisphere. Insecticides made from Brazilian roots are flown to various bases. A certain type of Fiji Islands beetle was flown to Honduras to check a root weevil attacking hemp.

Tonnages involved are often large for air freight. In eight weeks, 32 tons of bristles for the Navy, 70 tons of silk for parachutes, 47 tons of tin, and 70 tons of tungsten were moved from China to India. On another occasion, 98 tons of tungsten were flown out in ten days.

Recently planes returning from cargo-carrying flights to the Bahamas have been bringing back numbers of agricultural workers to be employed on American farms.

Planes returning from combat zones also bring back human cargo. Wounded enlisted men and officers, cases which call for treatment that is available only here



CURTISS-WRIGHT—COMMANDO. Army C-46. Originally designed as Model CW-20 to carry 30 passengers and 4 crew, and first operated in 1941 on British government airways, the C-46 is now considered the most efficient two-engine cargo carrier for hops under 1,500 miles. It carries 40 paratroops, or several jeeps, or two light tanks of 4,000 lbs. each. It can carry a loading ramp and hoisting gear and is fitted with a glider-towing cleat.

General classifications:

Two 2,000-hp. Pratt and Whitney R-2800 engines.

Standard gross weight, 48,000 lbs.; up to 50,000 lbs. for emergencies. Empty weight, 27,598 lbs. Pay load, 10,000 lbs. on 1,000-mile flight.

Normal fuel capacity, 1,000 gals.

The C-46, the largest of the two-engine land transports, is rapidly replacing the DC-3 as a cargo carrier.



BOEING 314 FLYING BOAT—CLIPPER. Several of these planes are being operated on schedule by a commercial air line on routes between the United States, Hawaii, the British Isles, and Africa. It was in a Boeing 314 that President Roosevelt made the over-water hops of his trip to Africa.

General specifications:

Four 1,600-hp. engines of the Wright R-2600 model.

Standard gross weight, 84,000 lbs., in commercial operations, but has been used up to 88,000 lbs., with heavy cargo. Normal commercial "useful load" of 38,000 lbs., i.e., cargo (including passengers), fuel, and crew.

Average cruising speed, 143 statute miles.

Normal fuel capacity, 5,448 gals.

In service since 1939, the Boeing 314 is still the largest airplane in general use, and carries the largest passenger loads the longest distances. Licensed to carry 74 passenger and 15 crew, the Clipper did so on short hops only (as from New York to Bermuda); on transoceanic trips it averaged half as many, plus cargo and mail. Passenger capacity is of course determined by range; the plane has flown up to 58 passengers across the ocean. It is capable of flying nonstop from New York to Foynes, Ireland, and has done so on occasion. But such flights are uneconomical for any plane; the large quantities of fuel required greatly reduce the passenger, mail, and cargo load. Refueling stops are therefore made at intermediate points.

Of the nine compartments in this plane, two are still equipped with six berths apiece, but seven have been stripped of a total of about a ton of sound proofing and passenger seats and berths to make room for light cargo and mail. As with all flying boats, the size of the Boeing 314's doors and openings does not permit the loading of cargo as bulky as jeeps or airplane engines.

at home, are evacuated in transport planes converted into flying hospitals. A number of serious cases recently reached Bolling Field, Washington, from India in 5 days—a distance of over 10,000 miles. On the planes on such flights are air evacuation nurses—graduates of the school of Air Evacuation Nurses at Bowman Field, Louisville, and also a medical sergeant with the rank of staff sergeant. All trans-

port planes are being equipped to carry standard stretchers for the evacuation of wounded. Up to thirty may be carried in a plane, depending on its size; often they are brought directly from the battlefield in smaller planes and moved to a big plane at a base.

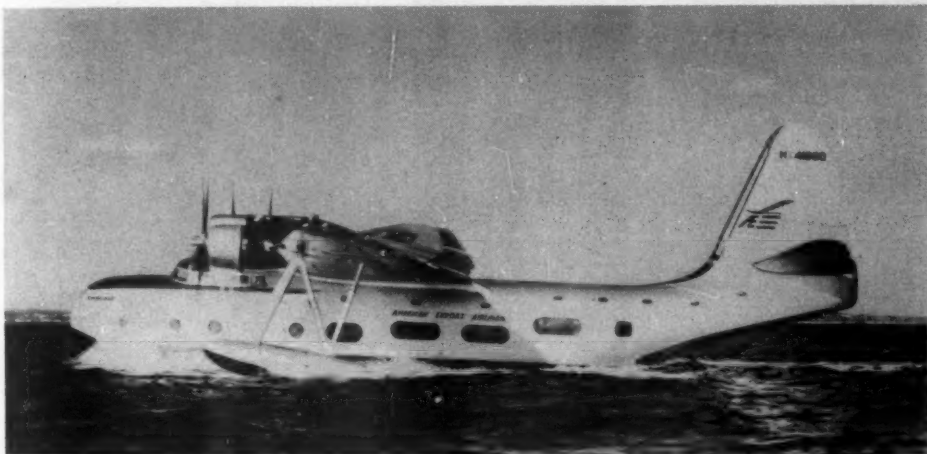
Battle-damaged submarines in distant waters receive repair parts by air and are

in action again in a few days instead of being idle a month. Auxiliary fuel tanks are flown to fighter planes, which immediately begin to cover larger areas than previously possible. Every day for many months transport plants have flown supplies to Guadalcanal from Pacific bases. Many Guadalcanal wounded were evacuated by air.

American Transport Planes

The accompanying list of the chief models of transport aircraft now in service indicates the extent to which America is making use of her available planes for the purposes of wartime air transport. Beginning the war without a single plane specifically designed for the carrying of air cargo, and with the first such planes still in the experimental stage at the present time, the impressive air cargo transport records being made by the Army, the Navy, and the commercial airlines are being made in passenger and bomber planes, re-modeled or adapted for their new work.

This means, of course, that present-day cargo transportation is being accomplished with a degree of efficiency considerably below that which would conceivably characterize planes specifically built for cargo purposes. B-24's, for example, converted *Liberator* bombers, are doing excellent service as cargo planes; but these bombers are so constructed as to require that their loads be carried in a concentrated location. Lack of available space for loading within balance limitations both fore and aft of the center of gravity greatly limit their cargo load capacity, and the weights and balance officers who supervise their loading have to exercise great care in distributing weight, particularly toward the tail. Planes originally designed for passenger transportation, too, even the newest models, such as the C-54 and the C-46, while they have greater capacity and space than bombers, are still far from ideal for the cargo-carrying work which they are performing so faithfully. Loading facilities, doors, and cargo hold-down facilities are afterthoughts. They are frequently at



VOUGHT-SIKORSKY—VS-44A—FLYING ACE. A flying boat with longer range than the Boeing 314 and with faster cruising speed on short range.

General specifications:

Four 1,300-hp. engines.

Standard gross weight, 59,225 lbs.

Normal fuel capacity, 3,820 gals.

Average cruising speed, 142 statute miles on long-distance flights.

This plane first came into service in 1942 to carry 28 passengers and 11 crew overseas or 44 passengers and 8 crew on short flights. Like the Clippers, and for the same reason, the Flying Aces are preferably refueled at an intermediate point when flying between the United States and the British Isles.

locations that interfere with maintenance, and in other instances are too high for truck platform loading and inefficient as to structural weight.

Present models of flying boats are particularly ill-suited to the carrying of bulky cargo, due to the small size of their hatches and the division of the plane into compartments by bulkheads which for structural reasons cannot be removed.

Furthermore, engine choice, fuel capacity, landing speed, and other specifications of all these war cargo planes are aimed at general all-round utility rather than designed for the greatest economical efficiency for a particular route.

In general, it may be said that a plane primarily designed to carry cargo could presumably be converted with comparative ease and without too great loss in efficiency for passenger use with the addition of seats, toilet facilities, and the like; or it could easily be converted to a bomber or flying fortress plane through the installation of guns and armor. The converse, however, is far from true. At present American air transport needs are being filled by operations that show considerable ingenuity but which cannot be called efficient from any modern requirement of cargo-carrying economics.

This country is fortunate in having had such a high development of air-line planes and operations at the beginning of the war.

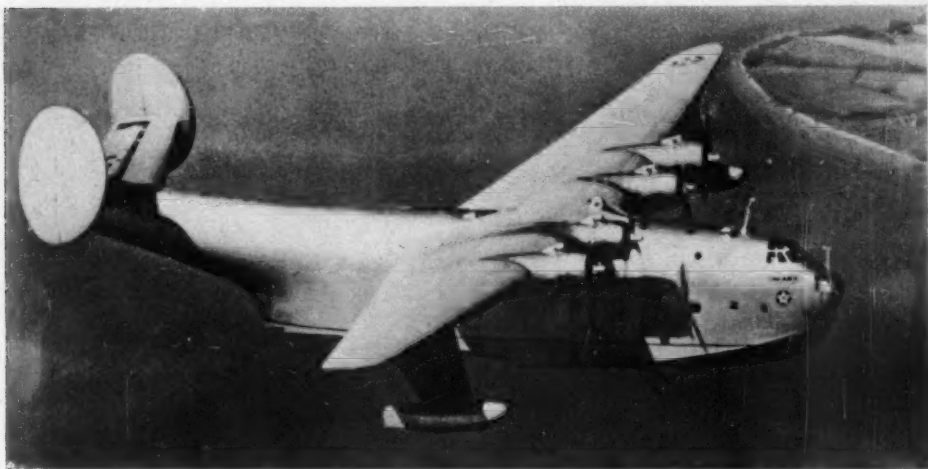
Airlines and Civilian Flying

During 1941, their last normal year of operations, American commercial air lines carried 4,060,500 passengers, an increase of 45,000 per cent over the approximately 8,700 carried in 1927. Between these same years, air mail increased from 1,270,300 pounds to 44,595,300 pounds, and air express and freight from 45,860 pounds to 22,315,000 pounds. In 1941 domestic air-line routes totaled about 30,000 miles.

Before Pearl Harbor, a maximum of 434 planes was being operated commercially within and beyond the continental limits of the United States by the air lines. They were divided as follows:

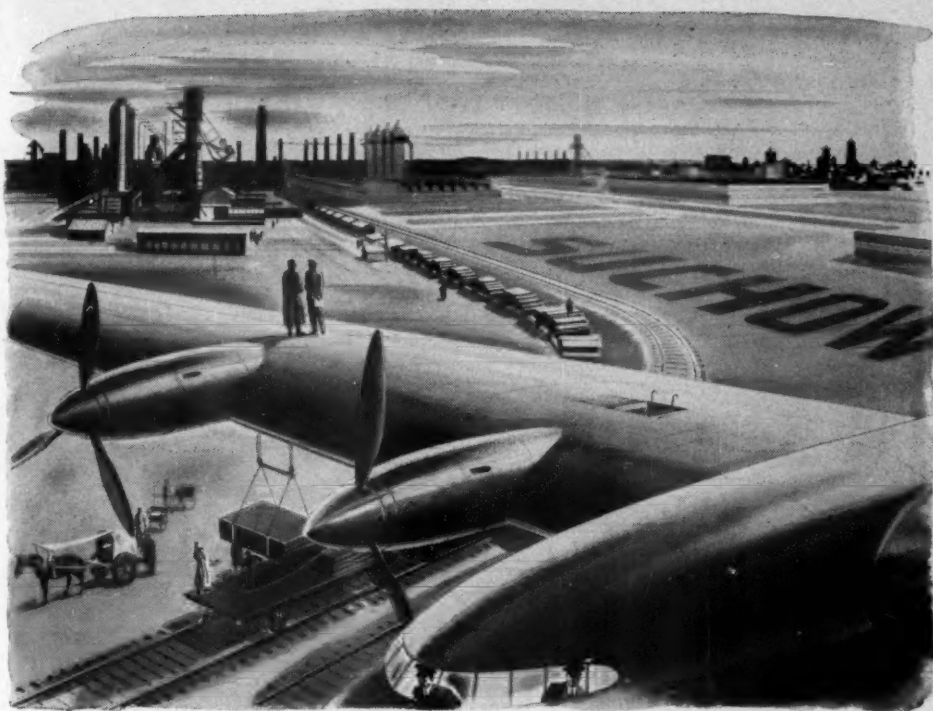
Domestic	358
Transoceanic	10
To Latin America	53
Hawaii	6
Alaska	7

On January 1, 1943, this number had been reduced to 256 (of which 166 were flying domestically), and that remains



Official U. S. Navy Photograph

MARTIN MARS FLYING BOAT.—Navy JRM-1. Probably the largest aircraft in existence, the *Mars* was originally built as a Navy patrol bomber, but has been converted for cargo use, with a loading track and large hatches. It has four Wright 18-cylinder engines of over 2,000-hp. each, 3-blade propellers, 140,000 lbs. gross weight. Fuel capacity is "about a tank-car load"; wing span, 200 feet; length, 117 feet 3 inches.



Commercial shippers' eyes will open wide

WHEN figures can be published . . . When the story of what Pan American is doing today with war-limited equipment can be told, commercial shippers' eyes will open wide.

Ton after ton of vitally needed war materials cross the Atlantic, the Pacific and the Caribbean every month. And this record is being achieved despite the fact that Pan American was unable to get delivery on the larger, more modern trans-

ports which were ordered *before Pearl Harbor*.

When new, much larger, all-cargo Clippers *are* made available (. . . and they may come before Peace) Pan American's 15 years' experience with air cargoes assures commercial shippers of superb transocean service. It will be natural, then, to turn to Pan American—the company which pioneered both Air Freight and overseas Air Express.

PAN AMERICAN WORLD AIRWAYS SYSTEM



BUY WAR BONDS

Wings over the WORLD
PAN AMERICAN CLIPPERS

JUNE 1943—PAGE 17



KAISER-HUGHES HK-1 FLYING BOAT. A giant, all-plywood ship, 400,000 lbs. gross weight, being built primarily for cargo carrying. Static testing of some sections has begun. Eight engines, 8,000 gals. fuel capacity, 120,000 lbs. cargo capacity. Average cruising speed, 174 miles. By far the largest aircraft actually under construction, with a 320-foot wing spread and a 218-foot length, the HK-1 is being built under contract to the Defense Plant Corp., a subsidiary of the RFC. Photo of early model courtesy *Time*.

approximately the number being flown commercially by the air lines at the present time. The rest have been taken over by the armed services, either outright or to be operated for them by the air lines under contract. Most of them have been stripped of their soundproofing and their upholstered chairs to make room for cargo, and equipped with folding metal "bucket seats" along the sides for the transport of paratroops and other combat units. In some, large doors have been cut for the loading of bulky freight, such as airplane engines and jeeps. Camouflaged in tones of olive drab or blue, they are

being forced somewhat more than when they were in air line passenger service—not only because they are carrying heavier pay loads but because with normal fuel consumption an airplane covered with paint loses up to twelve miles an hour of the speed it flew when its gleaming aluminum was kept waxed and polished. All over the world these ex-air-lines planes, along with many other transport planes built since the outbreak of the war, are being used for the transport of paratroops and other combat units, for glider towing, as ambulance planes, for the transport of staff, prisoners, mail, and important cargo



MARTIN MARINER FLYING BOAT. Another Navy patrol bomber, being converted for transport use under designation PBM-3R. Two 1,700-hp. Wright R-2600 engines, 24 tons gross weight. Average cruising speed, 150 miles; 3,000-mile range.

One plane of this model has been loaned by the Navy to Defense Plant Corp., which has used it during the past year for the transport of vital cargo between Miami and Cuba.

of all kinds. Personnel transported in them are not as comfortable as air lines passengers, and on night flights they and the flight orderlies rest as best they can on pads on the bucket seats, on the floor, or on top of crates and boxes.

The drastic reduction in the number of airplanes available for commercial use in domestic service made it necessary to exercise, for the first time, a control over schedules. No schedule is continued in operation unless it can be shown to be essential for war-transportation purposes, and the "Service Pattern" (the number of schedules to be operated on each authorized route, with stops to be made) set up by the Civil Aeronautics Board at the request of the Army is constantly revised. The 49-per cent cut in air-line flight equipment has resulted in only a 29-per cent cut in the number of schedules flown.

The planes still operated commercially by the air lines are carrying only slightly fewer passengers than were carried by the whole fleet before the war, and more mail and express. In October, 1942, air-cargo express was up 123 per cent from the same month in the previous year. These achievements have been made possible by greatly improved maintenance facilities and by increased utilization and efficiency, including quicker turn-arounds. In November, 1941, for example, the average daily mileage of a domestic air-lines plane was 1,070 miles; as of March, 1943, it was 1,625 miles, and the figure is in-

creasing. Recently, however, the air lines stated that if they are to continue to carry the increasing quantities of air mail, passengers, and air express they will require more planes, and the Army, after consultation with the CAB and the Post Office Department, has agreed to release some.

Flying is the only form of passenger travel at present selling tickets on a straight priorities basis. Members of the armed forces and government officials traveling on government business come first. Then, to the remaining extent of capacity, space is sold to other passengers. Except on the busiest routes, especially to and from Washington, space is usually obtainable, although not always for the particular flight desired. Sleeping accommodations have been removed from the domestic air-line planes which formerly had them.

Three All-Cargo Services

At present, three all-cargo commercial flights are operated by United States air lines on regular schedule—New York to Miami, New York to Salt Lake City, and from the Canal Zone to Lima, Peru, and thence on to Buenos Aires, the first regular cargo flight under the American flag in the international field.* These operations are being performed in passenger

*Panagra's famous cargo line. For a timely report on it, see July *AIR TRANSPORTATION*.

planes converted to transport use; no planes originally conceived solely for the carrying of air cargo are yet in regular service in the Western Hemisphere. This is true even in Bolivia, Colombia and Central America, where inadequate rail transport resulting from difficult terrain has brought about what is probably the highest development of commercial air cargo transport in the world.

Most of the 25,000 planes owned by private American flyers at the time of Pearl Harbor have by now, either been absorbed in the Civil Aeronautics Administration's War Training Service (formerly the Civilian Pilot Training Program), or have been purchased by the Army, or are being operated by their owners or by other civilian flyers in the Civil Air Patrol (recently transferred from the Office of Civilian Defense to the Army). A certain number of industrial corporations, engaged in essential war production, own and operate their own planes. There is very

little other private flying nowadays. In those areas where it is still permitted, a private flyer must obtain a clearance from the clearance officer of the flying field from which he takes off. No flights may be made from uncertificated airports, such as flying fields on farms or private estates. In vital defense areas private flying is permitted only upon clearance by the area Fighter Command.

The Air Transport Command

Of the almost 200 transport airplanes taken over from the commercial air lines by the armed services, many are being used by the Troop Carrier Command of the Army Air Force, whose function is the tactical delivery of troops and supplies into actual combat zones; others are used by the Air Transport Command, which engages in much more far-reaching domestic and international transportation, both of personnel and cargo.



DOUGLAS DC-4—SKYMASTER. Army designation C-54 as passenger transport; C-54A as cargo carrier. Navy, R5D.

Introduced in 1942, this big ship, more than twice the size of the DC-3, was designed to carry 42 passengers in commercial operations up to 1,000 miles, and now constantly carries 26 overseas. It will carry 54 hospital litters, or a light tank, or a heavy truck and has an interior hoist for loading purposes.

General specifications:

Four 1,350-hp. engines.

Standard gross weight 65,000 lbs. (12,500 pay load) as C-54; 66,000 lbs. (14,000 lbs. cargo capacity) as C-54A.

Average cruising speed up to 200 miles.

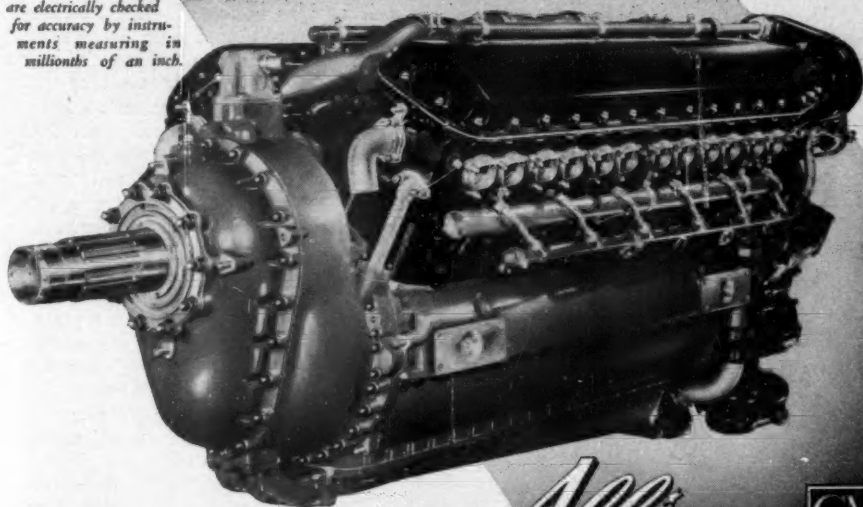
Fuel capacity, 3,700 gals. with four fuselage tanks.

The DC-4 is considered to be the most efficient plane for over 1,500-mile and trans-oceanic operations. It is supplanting the C-87 as a long-range cargo and passenger carrier.

ACHIEVEMENT OF A SINGLE PURPOSE

A SINGLE purpose spurred the engineers who planned the Allison engine. ★ A single purpose moves the metallurgists who test and choose the fine materials that go into it. ★ A single purpose guides the skilled hands of the craftsmen who machine and fit its gleaming parts with precision that finds few counterparts in volume production. ★ That purpose is to create the finest aircraft engine ever built. ★ How well that purpose is attained is being written in the records of the planes which the Allison powers—and in the standards it is establishing, at home and abroad, for sturdiness and dependability. ★ Employed in several types of American fighting planes, the Allison is proving before the world the ability of America to work to levels of quality and exactness never before approached.

Many Allison parts are electrically checked for accuracy by instruments measuring in millionths of an inch.



LIQUID-COOLED AIRCRAFT ENGINES

Allison
DIVISION OF



The Air Transport Command (ATC), although it did not receive the majority of the planes taken over from the air lines, has been assigned by far the largest proportion of the transport airplanes produced in the United States since the outbreak of the war—planes manufactured under contract to the War Department and under the supervision of the Matériel Command. Like the ex-air lines planes, most of these are equipped not with comfortable accommodations but with sterner fittings for the transport of military freight and passengers. All are painted olive drab or otherwise camouflaged, and bear the global insignia of the ATC. The ATC is at present performing scheduled worldwide operations that far exceed all previous air transportation of personnel and cargo as to both route-miles flown and loads carried.

The function of the ATC may be said to be threefold:

1. Its Ferrying Division delivers all combat aircraft from factories to tactical air-force units wherever needed, both within the United States and overseas, including planes being delivered to our Allies under Lend-Lease. Planes to be ferried are carefully serviced in ATC hangars or by the Air Service Command (the maintenance, service, and supply agency of the Air Force) before taking off. The Ferrying Division includes the Women's Auxiliary Ferrying Squadron (WAFS), which performs domestic ferrying operations.

2. In this country, with the cooperation of commercial air lines under contract to the War Department, the ATC conducts a Transition Transport Training of various flying schools maintained by the Flying Training Command, are put through a course in specialized (Transition) training for the operation of various types of transport planes.

3. The ATC establishes and maintains air routes and bases wherever necessary. It is the War Department agency for the transportation by air of cargo, personnel, and mail both within the United States and abroad.

Air cargo is prepared for ATC transport by the Air Service Command, which repacks manufacturers' and other goods so as to conserve weight and space, marks each object with a color indicating desti-

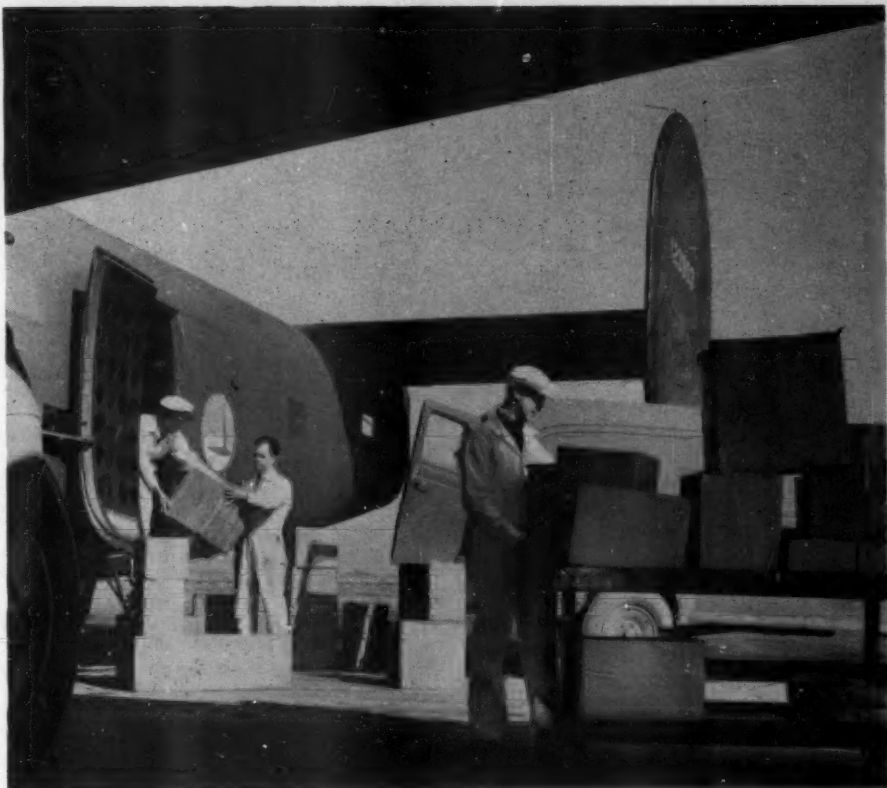
nation—which may be anywhere from Anchorage to Karachi—and holds cargo ready for loading in warehouses on ATC flying fields. The number of such fields scattered all over the globe must remain a secret of war, as must the number of planes operated by the ATC. The fleet is operating over more than 90,000 miles of transport routes, which are being extended as fighting-front requirements expand. Over a number of the world's air routes the ATC has established the first regular, scheduled service.

Among the routes established by the ATC are the North Atlantic route from the northeastern United States to the United Kingdom, the route from the southeastern United States across the South Atlantic to North Africa, a transafrican route to the Middle East, a route from San Francisco to Hawaii and down the chain of Pacific Islands to Australia, and routes to Latin America and Alaska. Military air transport in northwestern Canada has largely been undertaken by ATC.

Because planes originally conceived solely for the carrying of air cargo are not yet in service, the ATC is doing its work in converted passenger planes and converted bombers. Its principal planes are the C-53, C-47, C-46, C-54, and C-87, with the C-60, C-49, C-48, and converted B-24 (C-87) also in use. Some are operated by Army pilots; others by airline personnel, who wear the uniform of the ATC but with special insignia—the captain of a plane, who wears three bars, being the highest ranking officer in this branch of the service. Numerous personnel of the air lines have been taken over by the ATC and other commands, not only as pilots but for other operations.

To points within the Western Hemisphere alone the ATC is flying more than one million pounds of cargo each week, and if the war continues into 1944, its routes will probably be ten times as long as the combined routes of all the world's pre-war air lines. The ATC does as much of its flying at home as abroad. Over 50 per cent of all material destined for air shipment-overseas is moved by air from inland United States bases to other points within the country for transshipment. Also, considerable cargo is carried domestically by the Air Transport Command—flown to army bases of all types throughout the country.

For the month of February, 1943, losses



CONSOLIDATED C-87—LIBERATOR EXPRESS. The transport version of the B-24 *Liberator* bomber, being manufactured as a transport plane on a separate production line. Navy PB4Y-1.

General specifications:

Four 1,200-hp. Pratt and Whitney R-1830 engines.

Standard gross weight, 29 tons.

Average cruising speed as transport, 191 miles.

Normal fuel capacity, 2,650 gals.

Average cargo capacity, 10,000 lbs. on 1,000-mile flights; 6,000 lbs. on longest transoceanic ranges.

With its high wing, its enlarged sidedoor, and tricycle landing gear, the C-87 is an easy ship to load, but like all bombers its volume of cubic capacity for freight is small. It will hold 20 passengers and 5 crew; no jeeps. With added gas tanks the plane has a 3,000-mile range and is in constant transoceanic use, including company ferry operations in the Pacific. At present more C-87's are being used by the ATC than any other four-engine plane, but it is being superseded by the C-54A, which has better cargo facilities and more efficient performance.

It was in a C-87 that Wendell Willkie made his round-the-world flight. It is a fast plane and holds several records.

in the ATC were only four-hundredths of one per cent, and they have never risen above one per cent. In February, not a single plane was lost as the result of

enemy action on the long Pacific route. "although"—to quote Major General Harold L. George—"there have been several attempts to interfere."

Approximately parallel to the operations of the Air Transport Command, although on a smaller scale and without the Ferrying Service, are those of the Naval Air Transport Service (NATS), which is operating several hundred planes, including many flying boats, over 50,000 route miles.

Naval Air Transport Service

Navy transport planes are being flown either by former air lines pilots or by graduates of Naval Aviation schools trained in transport flying. Like the Army, the Navy has absorbed much ex-air-line personnel, many of whom are performing their same duties in the same places—but for the Navy and in Navy uniform.

Aircraft types used by the Naval Air Transport Service include the Douglas DC-3 in the form of the R4D-1 and the R4D-3, corresponding to the Army C-47 and C-53; the Consolidated *Coronado* converted for use as a transport and designated PB2Y-3R; the Martin *Mariner* converted to a transport and known as PBM-3R; the Douglas DC-4 *Skymaster*, designated as R5D; the Lockheed *Lodestar* (R50), and others. The most marked difference between the Army and Navy Transport Services is in the Navy's use of flying boats for cargo and personnel transport—including the evacuation of wounded in amphibious warfare. The use of flying boats has been almost entirely relinquished by the Army.

The NATS operates in three main divisions: Atlantic, West Coast, and Pacific. The Atlantic command, with headquarters at Patuxent River, Maryland, consists of squadrons serving the Atlantic coasts and islands of North, Central and South America, from Argentina, Newfoundland, down through various bases in the continental United States to Guantanamo, San Juan, Antigua, Santa Lucia (Trinidad), Natal and Rio de Janeiro, as well as to Portland Bight (Jamaica) and Coco Solo in the Canal Zone. The Atlantic Command also extends across the ocean to Europe and South Africa. From headquarters at Alameda, California, squadrons of the West Coast Command operate schedules for the transcontinental service and also serve western Canada and Alaska, flying specially equipped and winterized planes. Pearl Harbor is the headquarters of the Pacific Command, operating sched-

ules in the Pacific Ocean area, primarily southwest through the Pacific Islands to Australia, with at least daily service to all points.

As contrasted with the Air Transport Command, the vast majority of the operations of the Naval Air Transport Service take place between a point within the continental United States and an overseas destination.

To coordinate activities between the two services, and to avoid unnecessary duplication of operations, a joint Army-Navy Air Transport Committee meets regularly in Washington. There are three representatives of the Army, three of the Navy, and the chairman of the Civil Aeronautics Board. The ATC and the NATS constantly transport each other's personnel and cargo as space allows.

The Marine Corps does not operate a separate air-transport service, although its squadrons do include a number of transport planes, active particularly in the Pacific. The Coast Guard does not include air-transport operations among its various aviation activities.

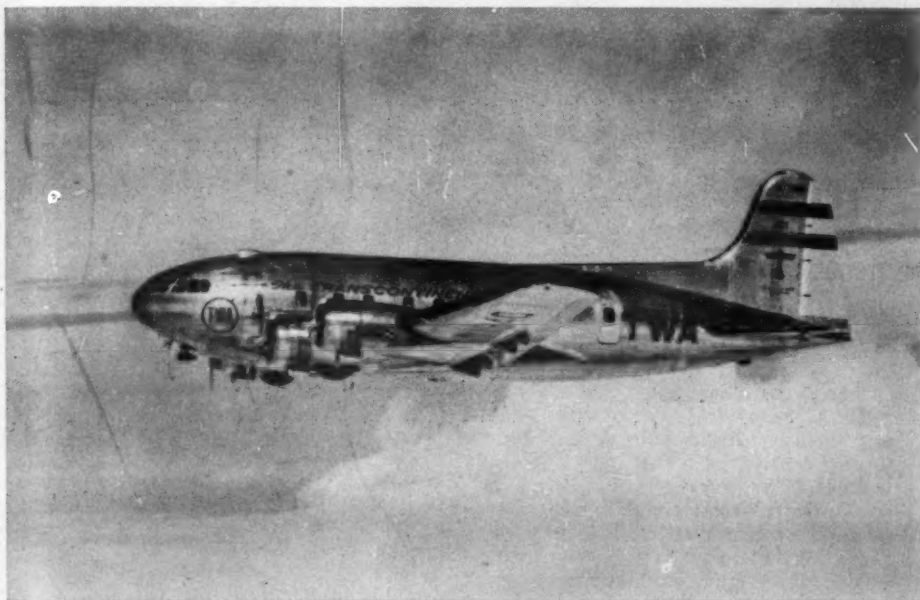
The Future of Air Transport

1. The Expectations

In 1938 the total production of the aviation industry—transport and combat planes together—amounted to a mere \$280,000,000. It soared to a \$1,800,000,000 in 1941 and in 1942 made another huge jump to \$6,400,000,000, second only to the steel industry. During the present year, according to the latest WPB figures, it will be three times as large. It will reach the colossal total of \$20,100,000,000, a fourth of our war budget for the year and almost a seventh of our estimated national income. Automobile production, which so profoundly influenced every part of America and all of its institutions, traditional points of view, industrial technology, marketing practices, and general cultural patterns, reached at its all-time peak in 1941 merely \$3,700,000,000. President Roosevelt recently stated that on the basis of unit weight, aircraft production for 1944 is expected to be 55 per cent larger than the enormous 1943 production. About two and a half million trained workers are now turning out our cargo and combat planes, and almost all of our plants are capable of total conversion to the production of civil aircraft.

As to numbers of American transport planes, no definite figures can be given at the present time because of wartime restrictions. But it may be said that more than one-fourth of all twin-engined and 4-engined aircraft manufactured in 1943 will be transports, and that if all the cargo planes expected to be delivered to the armed services in 1943 could be imagined as assembled in a single area, and all taken as assembled in a single area, and all taken seas destination, each of them carrying fuel for a 2,000-mile flight, they could have on board a total of over 20,000 tons of cargo.

An additional factor bearing upon the future of American air transport is the number of persons who will be air-minded after the war, including probably the majority of over 3,000,000 men who will be in the air forces by the end of this year as trained pilots, navigators, radiomen, airport engineers, traffic controllers, and the like. Also to be considered are the numbers of military planes which after the war will, presumably, be available for conversion to transport use if such conversion is not, by that time, considered uneconomical because of bombers' no-



BOEING 307—STRATOLINER, C-75. The first airplane to introduce a pressurized cabin in actual use in air transportation. Pressurizing comes into use at altitudes of 8,000 feet. The ratio of the air in the pressurized cabin to the outside air increases proportionately with altitude. In flights up to 15,000 feet, air pressure equal to that at 8,000-foot altitude is maintained in the cabin; up to 20,000 feet, equal to 10,000-foot altitude; above 20,000, a pressure differential of 2.5 pounds per square inch.

General specifications:

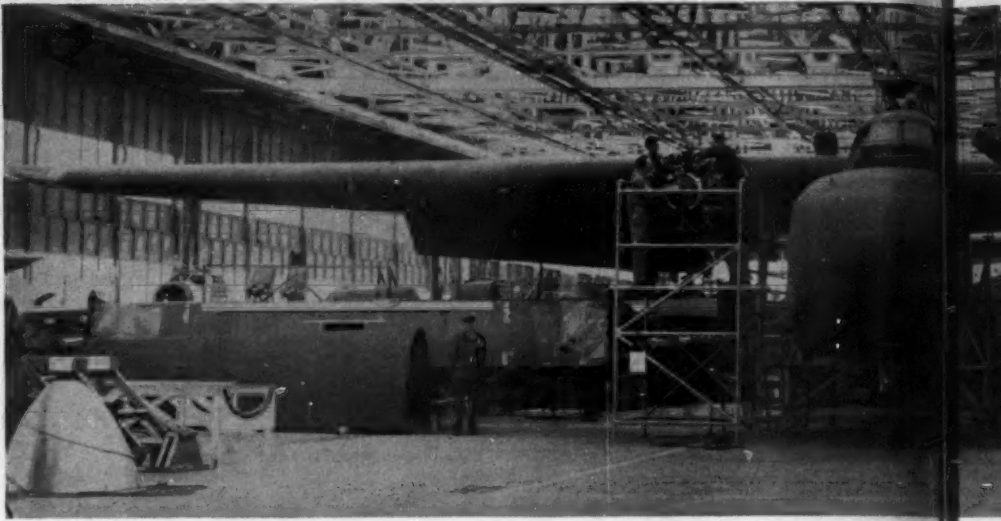
Four 1,100-hp. engines.

Standard gross weight, 45,000 lbs. Empty, 29,000. Cargo capacity about 8,000 lbs. on 1,000-mile flight.

Normal fuel capacity, 1,700 gals.

Average cruising speed, 185 miles.

First used in 1940, with a capacity of 33 passengers and 5 crew, this plane was formerly used considerably in establishing ATC services over routes to Africa and India. Three are being operated commercially by an air line in the Caribbean area and others are being flown under Army contract airline services. The plane is no longer being built, and in the ATC is being replaced by the C-54A, more efficient as a cargo plane.



CURTISS-WRIGHT—CARAVAN. C. 76. The first plane to be designed primarily as a short-route cargo carrier. Constructed entirely of plywood, of which it employs 50,000 sq. ft., the C-76 is being built in large part under subcontract with a Virginia plastics firm, a piano company in Ohio, and a Kentucky plant which has been manufacturing tobacco hog-heads, Army bunks, and bodies for trucks and station wagons. This plane has tricycle landing

toriously restricted cargo capacity and expensive maintenance.

These, then, are some of the reasons why the Civil Aeronautics Administration soberly contemplates that before 1950 the United States may well have half a million private, commercial, and military planes in active service. This may seem like a lot, but in planning future airways services CAA considers that it must count on that number. The National Resources Planning Board estimates that "within the next decade or two, air travel in the United States will assume approximately 70 per cent of present-day Pullman rail travel, or about 6 billion revenue passenger-miles," which means the transportation of approximately 20,000,000 passengers a year. The Civil Aeronautics Board expects this figure to be reached by 1946, and that by the same year transoceanic and international air passenger traffic under the American flag will increase 6 times and mail and express traffic at least 8 times over that carried during the year ending April 30, 1942. The Planning Board also estimates that all long-haul first-class mail will go by air, and that there will be regular air freight lines,

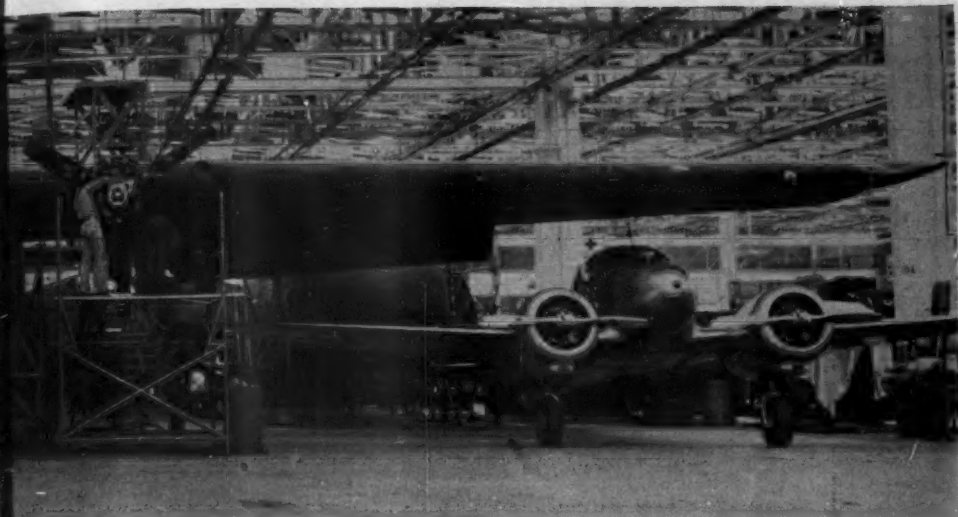
with feeder air lines to smaller cities and pick-up service in the villages.

Post-war flights (by shortest routes) between Washington, D. C., and other cities of the world will be possible on the following schedules:

*Less than 7 hours to Mexico City.
Less than 8 hours to Panama City.
8 or 9 hours to Seattle.
10 or 11 hours to Paris or London.
16 hours to Moscow, Rio de Janeiro, or Istanbul.
18 hours to Cairo or Buenos Aires.
22 hours to Tokio.
24 hours to Shanghai or New Delhi.
26 hours to Chungking or Cape of Good Hope.*

The following are some of the expectations concerning air transport:

Planes—By 1945 it is expected that transport planes in the 100,000 to 120,000-lb. class will be flying in quantity. On trips the length of New York to Chicago, such airplanes would carry 15 tons at 250 miles an hour. This is a capacity of 3,750 ton miles—about ten times as much as the DC-3.



gear, and the floor of the cargo hold is only 36 inches off the ground. It loads both at the nose and at the side, has an interior track hoist, and is fitted to tow gliders. Speed is sacrificed for loading ease, for slow landing, and for short field operations.

General specifications:

Two engines. Standard gross weight, 35,000 lbs. Empty, 20,000 lbs. Maximum fuel capacity, 600 gals. Average cruising speed, 160 miles.

Among planes at present flying, the Curtiss C-46 is credited with having done much to convince aeronautical engineers of the higher efficiency of larger planes, which can carry a higher percentage of load for the same proportion of horsepower. A powerful trend for commercial transport, therefore, will be toward these larger planes. It is expected that both two-engine and four-or-more-engine types will continue to be built—the former for economy, for use on shorter hops, as the present C-46; the latter, like the C-54, with what is at present, at least, considered to be their greater safety factor, for longer and transoceanic work. (The ATC, however, now uses the C-46 for transoceanic flights.) A multi-engine plane has a greater “one-engine-out” horsepower; if one of four engines goes out, one-quarter, not one-half of the total horsepower is lost. Because the material is critical and because of various developments that are still in the experimental stage, it is not expected that any important production of cargo planes using magnesium can take place for at least two, and possibly three years. Such construction is, however, potentially sound

and in long-range consideration may be important.

As to the place of flying boats in the future of air transport, varying opinions exist even within the Navy itself, where most of those already built are in service. Due to their present slow speed and difficulty in handling, there is wide objection to their use, particularly since swifter land planes are now commonly flown over water, and airports to receive them exist almost everywhere. But improved handling devices, already designed, would aid greatly in moving flying boats more expeditiously from water to land for docking purposes, and speed increase would be facilitated by the construction of sheltered, canal-like water runways, which would enable flying boats to rid themselves of some of the heavy equipment now carried for landings in comparatively rough water. At certain locations, it may well be impossible to build land runways of the great length required by some of the incoming models of land planes; in such cases flying boats landing on water runways might offer a solution. Furthermore, in time of war, water surfaces are not vulnerable to bomb damage.

As already mentioned, the cut-up interior of present-day flying boats makes them unsuitable for the transport of bulky cargo; new designs are called for.

Although in smaller models the construction of flying boats' landing gear makes them heavier than land planes of the same size class, the opposite is the case on larger models. Landing-gear weight does not increase proportionately with the size of a flying boat, and large flying boats have greater cargo capacity than land planes of the same empty weight.

Glider—If the maximum load that a cargo plane can fly with is limited by the plane's structural strength or cubic capacity, added carrying capacity can very well be supplied by the use of a glider in tow. Although gliders are advantageous in special cases and particularly in military use, their use is less important over long ranges in cargo carrying on large scale. They are useful when an airplane wishes to drop a load without landing, and they can be picked up by planes in flight. In wartime they are good for one-way trips—landing in rough places and staying there. Although glider enthusiasts expect wide post-war use of this craft for freight-and-passenger-carrying purposes, the entire aviation industry is by no means in agreement. Two companies have already fixed applications with the CAB for cargo-carrying air service which will utilize glider towing by aircraft.

Pick-up—The nonstop pick-up system, for the collection and delivery by air of mail and light express in small cities and communities without adequate airport facilities, is in use at the present time, under government contract, on five routes totaling about 1,400 miles a day, in New York, Pennsylvania, Delaware, Kentucky, Ohio and West Virginia. The operating center is Pittsburgh. The pick-up system is operated by releasing packages and picking them up by means of a lowered cable operated on a reel inside the airplane.

There are now 25 applications for the establishment of similar services before the Civil Aeronautics Board, covering all parts of the country, with considerable added expansion expected.

Helicopters—Three applications for Helicopter service have already been filed with the Civil Aeronautics Board; one, from an air-line company, requested

"Helicopter service to carry air mail and express to and from the roof tops of over 400 post offices and railroad stations in the six New England states and New York." Helicopters—or some form of rotating wing aircraft—are generally considered one of the coming types of craft for the post-war private use market.

Lighter-than-air craft—There is no production in this country at the present time of lighter-than-air craft of large-load-carrying rigid design such as the Zeppelins, the Akron, or the Macon. The possibilities of stimulating their production involve extensive problems, at least under present conditions. According to their record, their ton-mile capacity per pound of critical material used is not impressive, although their long-range ability must still be considered of interest in special cases.

2. Limiting Factors

Other statements concerning the future possibilities of air transport, more far reaching than the official expectations and less firmly based on actual conditions, are frequently made in newspapers and magazines. "The United States should immediately undertake to provide an air fleet designed to carry the bulk of the nation's and the world's cargoes." "The airplane will be completely accepted as the only suitable means of intercontinental travel. It will drive other forms of transportation out of business."

Such is a frequent type of statement by aviation enthusiasts, and it is best answered, perhaps, in the words of C. I. Stanton, Civil Aeronautics Administrator: "It is perfectly obvious that in the not too distant future high-value cargo of all kinds will be commonly transported by air both domestically and overseas; planes will carry passengers, mail, express, and freight in ever-growing quantities. But why stretch the facts? Why claim that air transportation will be the *only* form of transportation? Far from bringing about a decrease in surface traffic, expanded air traffic will increase it, for the fuel to keep the planes in the air will have to be hauled by surface craft."

More is required for a successful air transport system than merely the planes and pilots which America will have available in such great quantities after the war.

Availability and expense of fuel are limiting factors in air transport today, and will continue to be so as long as airplanes fly on gasoline. Original investment costs are also still relatively high. Present planes and planes being developed along the lines of present types are not ideally adapted to carry heavy freight long distances. Flights technically possible are often, as a matter of actual performance, still out of the question because of want of navigation facilities along the way or lack of adequate airports and repair shops, as well as refueling facilities.

On an air map, for example, the route from Chicago to Calcutta might ideally be across the Arctic Ocean and the North Pole. Such a route would be much shorter than the old shipping route via the Atlantic, the Mediterranean, and the Indian Ocean. But the absence of navigation aides and refueling facilities along the way forms a serious deterrent. For some time, round-the-world commercial air routes will probably bear some relation to populated areas. Certainly if a world-wide air transport system is to develop, gasoline tanks will have to be more thick-

ly scattered around the world than at present.

Gasoline is heavy. On long-range flights, the weight of a plane's fuel may well surpass the weight of its engines. And if a plane flies to an area which is without oil resources, fuel for its return flight has to be got there somehow.

"A Clipper can carry 8½ tons of freight from New York to England if it refuels in Newfoundland," Mr. Stanton says, "whereas a 10,000-ton surface freighter can carry from six to eight thousand tons of cargo, together with fuel and stores for the round trip. Therefore a good many hundred Clipper trips would be needed to carry the tonnage which one 10,000-ton waterborne freighter can handle on one voyage. Furthermore, 8,500 tons of gasoline would have to be got to England to fuel these hundreds of Clipper trips back to Newfoundland, and 10,500 tons would have to be got to Newfoundland to fuel them between Newfoundland and England and Newfoundland and New York. Thus more than two surface freighter loads of gasoline must be carried to Newfoundland and England to permit the air delivery of a cargo which one freighter could

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carry across. This more than doubles the surface vessel cargo tonnage requirements. The more planes that fly, the more ships will have to sail."

Furthermore, plane rates per mile are still considerably higher than those offered by truck, railroad, and steamship. "For various perishable products," Mr. Stanton says, "and for many products of a high per-unit value such as films, radios, precious metals, and women's clothes, speed of delivery may well pay for itself. But for heavy products, including raw materials, speed is less important than steady, voluminous flow. Even if air cargo costs could be cut from the present aver-

age of 40 cents a mile to 10 cents, they would still be enormously higher than those of the railroads and steamships, which express their costs per ton-mile in mills, not cents. It is only logical to expect that the plane will greatly supplement—but that it will not supplant—other means of transport."

The time and expense required in the development of each new model must also be taken into account in any consideration of present-day aircraft. The remark so often heard in aviation circles—"by the time an airplane is perfected, it's obsolete"—testifies to the rate of change in everything pertaining to flying today.

Thus reads the major portion of the OWI report. The remainder of the report, covering the work of the CAB and CAA, airways development and pilot training—together with descriptions of other cargo aircraft—will appear in AIR TRANSPORTATION for July.

FOOTNOTE ON OWI REPORT

Some bomber planes are being used for transport purposes without being altered in any way. Bombers which are being ferried abroad for foreign service, for example, carry personnel and sometimes strategic cargo with them on the trip; and then, after arrival, go into combat service.

Several types of bombers, however, are being used regularly in transport service, either in models which have been converted individually for transport work by being stripped of some of their armor or in models manufactured in converted design specifically for transport purposes. Converted bombers usually carry auxiliary gas tanks in their bomb bays.

This list of the chief models of transport aircraft now in service has been compiled for the purpose of showing to what extent America is making use of her available planes for the purposes of wartime air transport.

In the descriptions, here given it should be borne in mind that due to constant changes being made in the aircraft structure for various transport uses, as for example the addition of winterizing equipment and life rafts, all figures concerning weight can be only approximate. Average cruising speeds, computed on around 60 per cent or less of horsepower of the engine, can also be only approximate; they depend on altitude, range to be covered, grade of fuel used, weather conditions to be met, and the like.

The engines of all the planes in the list are radial air cooled, due to the preponderance of this development in the United States.

The letter C, in Army designations, signifies cargo. In Navy designations, J signifies General Utility Transport; R, multi-engine; PB, patrol bomber.

The weight of one gallon of gasoline is approximately 6 pounds.

Certain details of performance on some planes have of necessity been omitted because they come within the realm of secret military information.

Except where otherwise specified, all planes in the list are built of aluminum alloy in the standard American production type of construction.

Another Huge Plane Planned by Kaiser; This One Tailless

The huge Howard Hughes-Henry Kaiser cargoliner that was the talk of the nation last autumn—and was illustrated on the front cover of AIR TRANSPORTATION's inaugural issue in October (for more on that craft, see page 18)—isn't all the great shipbuilder has in the works.

Announced last month by Brewster Aeronautical Corp., now controlled by the Kaiser interests, the newer ship is to be known as *Flying Wings*, will weigh 85 tons, will have no tail or fuselage. Wingspread will be 282 feet, the announcement to the press said, and its four engines will develop 8,000 horsepower.

No other details were available, the company told AIR TRANSPORTATION, beyond the fact that the Navy is understood to have allotted funds for construction of models and for wind tunnel tests as first steps in the building of the revolutionary craft.



Expreso Aereo Inter-Americano, S.A., was recently authorized by the Civil Aeronautics Board to operate an Air Express Line between Miami, Florida and Havana, Cuba

Curtailed shipping, brought about by the whole world being plunged into war, has resulted in a congestion of ports and terminals that must be relieved. Neighboring countries are in need of foodstuffs, replacement parts, pharmaceuticals and many other articles that we are in a position to carry quickly and safely.

"Expreso Aereo" will do much toward solving the problem in this area. The initial service, being inaugurated this week between the United States and Cuba through the port of Miami, offers manufacturers, exporters and importers a rapid, efficient Air Express service between these points for the handling of light and heavy air cargo.

Through a comprehensive plan shipments will be handled from principal cities in the United States direct to Havana. On the return trip planes will bring many products from Cuba for which shipping facilities have not recently been available. Courteous attention to all inquiries, prompt dispatch of shipments and careful handling of merchandise will characterize "Expreso Aereo" service.

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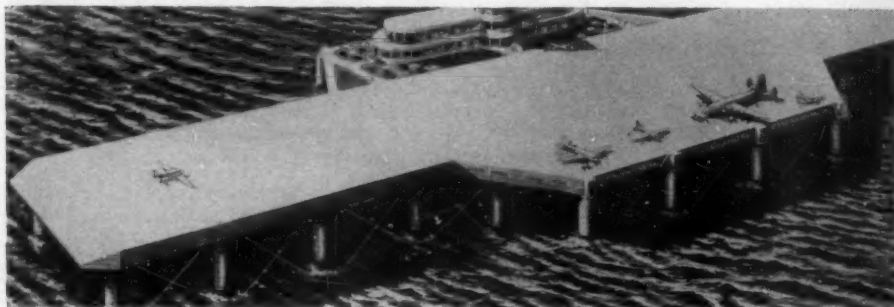
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AIRPORTATION NEWS

Pennsylvania-Central Wins News Spotlight with Seadrome Project

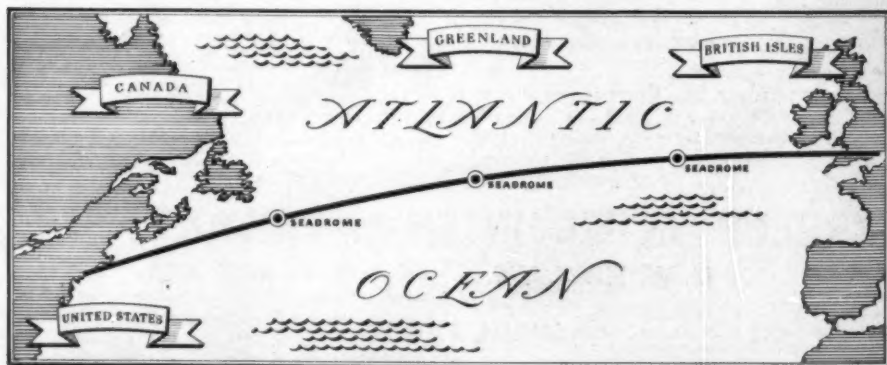


New "air bases for America" to provide what PCA calls "the first practical answer to transoceanic flying," open to all companies and all nations, were spectacularly announced last month by Pennsylvania-Central Airlines and a group of other business organizations.

The plan was disclosed in Pennsylvania-Central's application to the Civil Aeronautics Board, proposing to establish a "Seadrome" route between the U. S. and Great Britain. Floating "islands of steel" at 800-mile intervals across the Atlantic "will give America vitally needed bases in that ocean and will provide the shortest, fastest and most eco-

nomic airway route between this country and Europe," according to C. Bedell Monro, PCA's president.

The Seadromes were invented and developed during the past 10 years by Edward R. Armstrong, of Philadelphia. They will stand 70 feet above the ocean with a draft of 160 feet below the surface to "keep them as steady as the mainland itself," according to the inventor. Each airdrome would provide complete airport facilities in addition to the important one of refueling. Hotel facilities are also included in the plan so passengers desiring to "vacation at sea" can do it between planes.



Sun Shipbuilding & Drydock Co. is to construct the seadromes "as soon as steel is available." Sponsoring the project, and to be associated with Sun Shipbuilding in its construction are United States Steel Corp., Wirth Steel Co., Belmont Iron Works, and John A. Roebbling Co.

While Pennsylvania-Central has filed for permission to fly the Seadrome route, expected to connect the eastern seaboard with ports to be designated by CAB, it is emphasized by Monro that these new bases will be made available to all companies and all nations that qualify. "This is done so that the progress of post-war aviation will not be impeded and so that America can truly be said to be in a position of collaborator and not competitor in transoceanic air travel," the PCA president explained. He said that no monopoly is sought or desired, and that the Seadrome route will be made accessible to the airlines of this and all other nations.

Big point made by PCA is that the short 800-mile hops between seadromes will mean vastly increased weight-carrying capacity for planes. This will increase by several hundred per cent the possible payload.



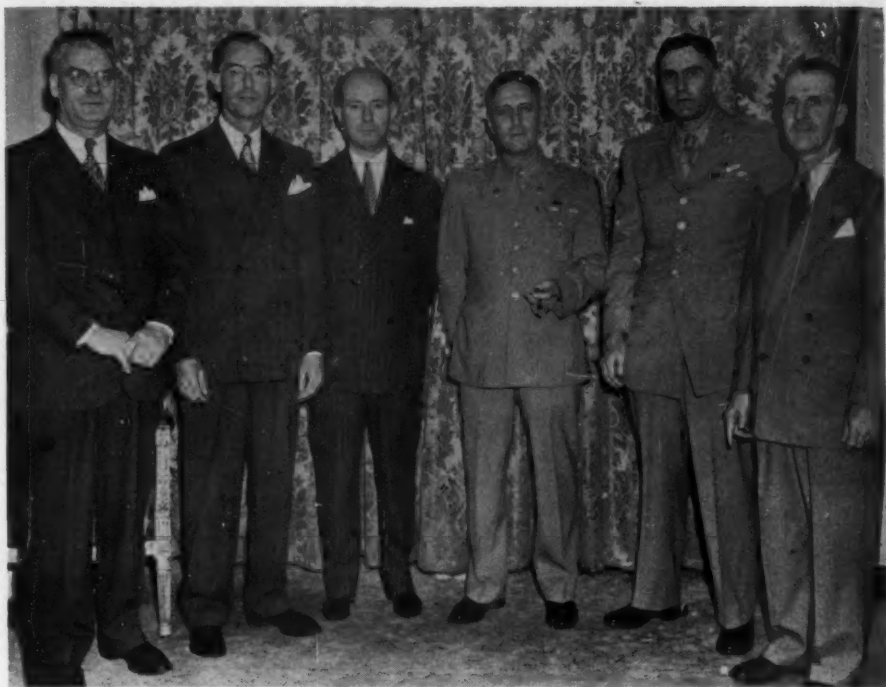
Edward R. Armstrong, engineer who developed the Seadrome, explains the working model of his "floating island of steel" to C. Bedell Monro, president of Pennsylvania-Central Airlines, which has just filed application to fly by the revolutionary airway between the U. S. and Europe. Armstrong has worked more than 10 years on the novel idea.

Slattery Is Encyclopedic-Minded Information Chief for CAB



Two years on a steel frame in bed and three years in a wheel-chair couldn't keep his eyes from the sky. Not long afterward Ed Slattery was working as an aerial photographer and since then has accumulated more than 350 hours in the air in his aerial kodaking. In between times he managed a special one year elementary aeronautics course given by Massachusetts Institute of Technology. His first aviation writing was published by the old *Boston Transcript* in 1928 and since that time his fiction and articles in the field of aviation gained wide following. In Washington as Administrative Assistant to Commissioner Kerr of the WPA he performed all types of public information and press relations work, writing many of WPA's airports and airways releases.

Slattery went with the Civil Aeronautics Board in August 1942 as acting chief of the Board's Public Information Office. In December of the same year the Board appointed him



WHEN IT WAS AVIATION NIGHT at New York's Foreign Commerce Club on May 19, these authorities gathered for the event headlined by Colonel Edgar S. Gorrell's address (Air Transportation, May). Left to right, they are W. J. Honan, chairman of the board, and James A. Dennean, president, Foreign Commerce Club; Colonel Gorrell, president, Air Transport Assn.; Major General Harold L. George, Commander Army Air Transport Command; Brigadier General W. E. Farthing; John F. Budd, speakers' chairman and publisher of Air Transportation.

chief of public information: practically-minded enough to have been working towards this goal, he was sentimental enough about aviation to hold the announcement until Dec. 17, anniversary of the Wright's first flight.

In the course of a single day's business in Washington he probably talks with more aviation people than anyone else in the aviation industry. His mail, telephone, and cable requests concerning American civil aviation keep him on his toes—but he has been so busy selling aviation since his first flight back in 1927, the story of which, incidentally, he sold and published under the title *First Flight*, that it comes without effort.

From the air he knows the eastern seaboard as well as a subway commuter knows the advertising between Manhattan and Brooklyn. He has flown in everything from old Curtiss *Seagull* boats to the latest in four motored

Stratoliners; his favorite was an OX-5 Bird biplane because the view from the front cockpit was so perfect for a photographer, and because "... I used to imagine it was a P-6 Hawk."

He sums up his work with the Board in Washington: "Information is something you give people so they will know more about something—especially aviation." You get your aviation questions answered in the CAB Public Information offices these days, even if he has to sit you down and 'phone around the Washington Merry-Go-Round to get the answers. He goes through red tape like a dive bomber. He is well known and well liked in Washington newspaper circles and by airline representatives. He has one unswervable aviation loyalty and if you don't even give him a chance he'll tell you about it—the Civil Aeronautics Board!

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Evans Urges Gliders Towed by Surface Ships To Fight Submarines

A new means of combating the submarine by tow gliders with folding wings, attached via cable to war vessels and merchant ships was revealed last month by Col. Edward S. Evans, Detroit industrialist, international loading authority, and father of gliding in the United States, in a national radio address over NBC.

One of the foremost proponents of air cargo, Col. Evans is president of Evans Products Co., and former president of Lockheed, Eastman and Ryan aircraft companies. He was chairman of Stinson Aircraft and helped to organize Northwest Airways. He was also a Director of Curtiss-Wright and established a world's record by circumnavigating the globe in 1926.

Col. Evans declared that although we are cheating Axis submarines by flying freight over the Arctic Circle, both gliders and helicopters can be used to defeat the subs; whereas the helicopter is superior in certain respects because it can be sent out from the ship, it requires more time and is more costly to build and faces the problem of fuel. Gliders present no production problem, are less expensive and quicker to build, he holds. If needed, 100 to 1,000 gliders can be turned out by woodworking, furniture or piano making plants next month, he said.

Properly designed gliders, attached to slow vessels, he maintains, can rise 1,000 to 2,000 feet for observation. Faster ships will permit the glider to gain an altitude of 2,000 to 3,000 feet, he says. Submarines or approaching enemy ships and convoys can be spotted by the Navy in time to protect itself if gliders are attached to the parent ship.

Col. Evans says that these gliders can be designed so as to conserve space and can either be carried aboard ship with their wings folded to fit into a V-shape cradle, or can hang over the stern of the ship, if necessary. As the vessel moves forward, the glider with its pilot is released from its cradle by a winch and begins ascent, the cable gradually being played out until the desired altitude is reached. To bring the glider back to the ship, the winch is started and the glider pulled in, much as children pull in a kite.

Evans further held that it is possible for these trailer gliders to carry at 500-lb. bomb.



ENGLAND IN SEVEN HOURS and 16 minutes was the all-time record set by Capt. G. R. "Sam" Buxton (below) of British Overseas Airways Corp. on his May flight across the Atlantic from Newfoundland in a fully-loaded Consolidated Liberator (see also page 23) of the RAF Transport Command. He beat by 24 minutes the previous record, set just a few days before by Capt. W. S. May (above), also flying a Liberator for the RAF. Capt. Buxton's average speed was 316 m.p.h.



Colonial Speeds Service

Colonial Airline's trips numbered 5 and 6 between New York and Montreal have been changed in order to better service, the line announces. Trip 5 leaves Montreal at 8 p.m., arrives at Burlington at 8.35 p.m., in New York at 10.30 p.m. Trip 6 features a new express service, leaving New York at 8 p.m., arriving in Montreal at 10.10 p.m.

Five Foreign Airlines Win Permits For New Miami-Caribbean Services

"Because of traffic congestion and lack of adequate transportation facilities in the Caribbean area caused by the war emergency," the Civil Aeronautics Board last month granted temporary six-month permits, approved by President Roosevelt, and effective immediately, to five foreign air carriers for transportation between Miami, Fla.; the Caribbean area and Central America.

The permits were granted to TACA, S. A., British West Indian Airways, Royal Dutch Airlines (KLM), Expreso Aero Inter-Americano, S.A., and Compania Nacional Cubana de Aviacion, S.A.

In describing the temporary nature of the permits granted the Board said that "Inasmuch as the necessity for these permits results from an emergency condition arising out of the prosecution of the war, the issuance thereof will not be recognized as constituting any basis for future plans of permanent operating rights and does not represent any indication of permanent policy with respect to international commercial aviation." The action of the Board was the result of an investigation started in September, 1942, to determine the extent of air transport shortage which appeared to exist in the Caribbean area and to provide, if possible, temporary relief.

The application of two American domestic air carriers, Eastern Air Lines Inc. and National Airlines Inc., were denied. CAB pointed out that these carriers could provide service over the Caribbean area only by diverting widely needed flight equipment from their operations within the U. S. but that the foreign applicants could provide some relief without taxing U. S. domestic equipment.

Pan American Airways, of course, is now and has been operating for several years between Miami, the Caribbean, and Central and South America. The Board found that the existing common carrier air service, limited by unavailability of equipment, was inadequate to handle the full current traffic.

The temporary permits contain a provision that CAB may extend them for periods not exceeding three months each but not beyond a date six months after the war. Routes of the new lines include Miami and Port au Spain, Trinidad; Miami and San Jose, Costa Rica; Miami and Willemstad, Curacao, Netherlands West Indies; and Miami and Havana, most of them via intermediate points.

New Air Cargo Line From Miami to Cuba To Open This Month

Plans for inauguration this month of a Miami-Havana air cargo service have just been revealed by officials of the Cuban-owned Expreso Aero Inter-Americano.

Granted a common carrier certificate early this month, the company will start operations on a six-trip-a-week basis with a four-plane fleet including two Ford tri-motored landplanes and two twin-engined Sikorsky amphibians.

With its present equipment, Intam will be able to move some 42,000 lb. of freight a week between Miami and the Cuban capital, according to Gustavo Bustamante, vice president and general manager.

Chicks, ducklings, medicine and seeds are among the items for which Cuban importers have already indicated they would contract, Bustamante told AIR TRANSPORTATION; while manufacturers of cigars, maracas and other items are expected to provide the bulk of the Miami-bound cargo.

First Cuban-owned airline to operate into the U. S., Intam is headed by Dr. Teodoro Johnson, prominent Cuban business man, and other Cuban commercial leaders are represented on the board of directors.

Arrangements have been made to use the Pan American field at Miami as the U. S. terminus of the line.

Eugene, Ore., Now Air Stop

EUGENE, ORE., site of the University of Oregon and center of the thriving Willamette Valley, has been added as a stop on United Air Lines' Pacific Coast route. At the same time, United has resumed service into San Diego, as authorized by the Civil Aeronautics Board.

Eugene became the 16th Pacific Coast city to receive United's service when inaugural ceremonies took place there May 1. On the same date, United again began operating Mainliners in and out of San Diego, to which service had been temporarily suspended by Government order because of war conditions a year ago.



Will My Product Be Suitable for Shipment by Plane?

By GEORGE F. BAUER

International Traffic Analyst, Air Cargo Inc.

TIME, being money, is the best thing a business man can keep in mind when approaching the subject of air transport.

The next one is a review of his entire business from sources of raw materials proceeding to production, promotion, shipping and retailing up to the time of actual use of his product by a customer.

He should, however, analyze these different steps in typical transactions of his trade from the angle of what a possible saving of 4/5 of normal time may have on each of them if air cargo facilities are used in world commerce on an extensive scale after the war.

With this broader approach, whereby transport costs appear as only one of the components in a commercial transaction, it will be possible to visualize better the many other functions of business that are affected favorably by time economy. In this way, a truer picture will gradually reveal itself of air transport as an important instrument of commerce.

The effects of time in terms of costs when applied to goods many not yet be appreciated as much as the time savings when interpreted in cost of business travel by air. The underlying factor of time, however, is identical in both instances.

For illustration, an export manager, in the earlier days, may have said to himself: "Why should I pay \$350 for an air-plane trip from the United States down to the west coast of South America, when I can go by steamer for \$250. After all, there is a difference of \$100." He might

even continue: "This is a tidy sum that, while for overseas sales promotion, will have to be borne by my firm, I'll not incur this unnecessary outlay that will cost my firm money."

It was loyal reasoning, but it left out the cost to his firm for time. His salary check is a payment for time. His living expenses while on a trip are also related to time. There was an "invisible" expense going on right along because time was a factor of expense to the firm.

The firm paid, let us say, \$35 a day for the salary and living expenses while en route. If the trip lasted 18 days, the total sum paid out by the firm amounted to \$630. If the trip had been accomplished in 3 days, these salary and living expenses would have been only \$105.

The indirect benefit from time saving consequently represented \$525 and the difference in direct travel cost by air as against surface facilities only \$100. Air travel consequently was the better bargain from the viewpoint of the firm by \$425. That was a while ago.

The advantages to a firm from proper appraisal of time as an item of expense may prove even greater after the war in

the matter of business travel. Time saving has been analyzed in this particular phase of commercial activity and its benefits not found lacking.

Time, too, may similarly reveal itself as an important factor in the transport by airplane of goods just as it has with business travelers. Time saving will be the element that will decide the air transport suitability of a product in international trade. Its influence, however, will have to be measured in not one but in all phases of a transaction in a given product from source of origin to destination or from producer to user.

It is only through a study of all the ramifications of a trade that the time saving benefits can be translated into dollars and cents and the real scope of air cargo determined for a particular business.

Savings in costs of doing business and not expense of transport alone will finally decide what products can be shipped economically in world trade.

The emphasis needs then to be on all costs affected by time economy in an import or export transaction to determine

what might be called "air transport suitability" of a product.

Cooperation of domestic and export executives becomes indispensable in launching a study into air cargo possibilities for a particular firm. There is no longer a line of demarcation. Time-space has replaced the conception of space alone. Business men of different continents are as close together in terms of time because of the plane today as Americans were to one another in our United States a while ago. This closeness allows for coordination of trade practices along lines previously inconceivable when distances were great in terms of time. A policy of a business will have to be investigated from the viewpoint of its anticipated effect on conditions not in the United States alone but in the entire world. Quick business contacts, followed up by prompt deliveries of air cargoes to distant global regions, make unavoidable a closer working arrangement between domestic and export executives. This teamwork should prove most beneficial to the firm and to the many persons that may be linked com-

The Author

Mr. George F. Bauer is International Traffic Analyst of Air Cargo, Inc., an organization sponsored by the Am. carriers to investigate subjects of special importance in the post-war period.

For twenty years he was Export Manager of the Automobile Manufacturers Association. As such, he directed campaigns in about 64 countries to further utility features of motor transport. Conferences with leaders and the public in cooperation with local automobile clubs were organized here and abroad and conducted in as many as twelve languages. Manufacturers supported the work by assessment on themselves of fees varying according to respective outputs. Exports of U.S. motor vehicles were aided partly from these efforts and rose from about 150,000 to nearly one million units in a year.

Mr. Bauer also initiated the World Trade League, of which he became Chairman, to help advance through its members, public understanding for need of a Reciprocal Trade Program. Praise for this work was given by President Roosevelt and Secretary of State Hull.

Previously, he was Commercial Agent in the Bureau of Foreign and Domestic Commerce and also Aid to the Financial Advisor in Haiti. Being in that country during the first World War, he served in various Consular positions and as Aid to the Food Administrator and Alien Custodian.

More recently he was a Delegate for the U.S. Department of State to the Pan-American Highway Congress in Chile.

Because of special knowledge, he was made a Director of the American Manufacturers Export Association and Chairman of the New York Foreign Trade Week Committee. He also served as member on various committees of the National Foreign Trade Council.

He has attended, as a Delegate, most of the Congresses of the International Chamber of Commerce held in various parts of the world and cooperated in the work of several committees in its American Section.

He consequently possesses knowledge of not only languages but also of the fundamentals underlying commerce and transportation and its numerous ramifications of a national and world-wide character.



SMILING READERS are one and all vice presidents of Pan American Airways System, dining at the 11th Annual Pan Am general traffic conference. They are Samuel F. Pryor, also assistant to president Juan Terry Trippe; Victor E. Chenea, also general traffic manager, and Harold M. Bixby.



BARR

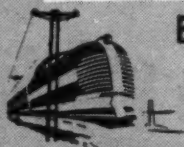
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mercially with it in various parts of the world.

The trade practices found effective in the United States for any given industry may readily be elongated to world regions. Time separations will no longer be hindrances. Methods, also proved satisfactory in other countries, will hardly be viewed as foreign but rather as worthy of application here, too. Business cannot help adjusting itself to the changes that the time economy of the airplane will bring about.

Continuous cooperation between domestic and export executives will be the usual thing in the daily work. Only through recognition of their mutual interests will they be able to prepare for "one world" trade.

Jointly, they can find out how the indirect benefits of time saving, likely to be 4/5 of normal requirements in world trade, will favorably affect in the case of their particular business the following:

1. *Cost of their product, if it is of a perishable kind, possesses a style factor or is subject to depreciation and obsolescence, or represents a high value per pound.*
2. *Cost of Production, if volume of business, expressed in turnover, can be increased by airplane time saving to accord additional economies in different departments and more profit for the producer.*
3. *Cost of Shipping, if packing can be lightened with resultant economies in air transport charge, which is based on weight, and handling, carting, reshipments, insurance and warehousing expenditures reduced.*
4. *Cost to Dealer, if able to do larger amount of business without increase in capital requirements and existing facilities as result of time economy applied to stocks afloat and on hand.*

"Analyses of these components of a business will show the indirect benefits of time economy. From their total can be deducted the direct cost of air transport for a particular shipment at rates that in postwar period may be appraised in the neighborhood of 15 to 20 cents a ton mile although actual rate cannot be fixed until results of numerous developments have been calculated.

"Under this procedure it will be found, as with air travel, that indirect savings with air cargo due to time economy may readily offset in the postwar period any higher cost of air transport as a separate item."

Cargo at N. Y. Up 50 Pct.

Weight of air cargo (express) shipments handled through LaGuardia Field in the first three months of this year was 52.5 per cent higher than in the comparable 1942 period, the air express division of Railway Express Agency has reported. A total of 1,321,051 lbs. was handled for the domestic airlines, compared with 866,134 lbs. in the 1942 quarter. Movement of materials essential to the country's war production continued to be largely responsible for these gains.

United Air Lines reports a 40 per cent gain in air cargo pound-miles flown in April this year as compared with the same month in 1942 and a 95 per cent increase in air mail pound-miles flown.

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BILLY MITCHELL—by Emile Gauvreau and Lester Cohen. Written to show how nearly 100 per cent right Billy Mitchell was in everything he predicted, it also tells how much danger could have been avoided, and how many lives of Americans could have been saved . . . had the Government listened. The authors were close friends of Mitchell, and had first-hand information on everything he did. *Copies may be obtained from E. P. Dutton & Co., 300 Fourth Ave., New York. \$2.50.*

WE THOUGHT WE HEARD THE ANGELS SING—by Lieut. James C. Whittaker. The author was co-pilot of the plane, lost in the Pacific, that carried Capt. Edward V. Rickenbacker. Lieut. Whittaker wrote from the diary he kept on that voyage—only diary that was kept by any one of the men. He tells the story of eight men against the sea, and of one who died—how they prayed with a small khaki-covered Bible, which belonged to one of the men, and how their prayers were answered. *Copies may be obtained from E. P. Dutton & Co., 300 Fourth Ave., New York. \$1.50.*

SEVEN CAME THROUGH—by Capt. Edward V. Rickenbacker. Capt. Rickenbacker gives a full account of those harrowing

days spent at sea with his companions. *Copies may be obtained from Doubleday, Doran & Co., 14 West 49th St., New York. \$1.50.*

GETTING THEM INTO THE BLUE—by Ernest K. Gann. The story of planes—how they are made, how they are powered, and how they are planned. There are different sections—one dedicated to materials and their assembly from all parts of the world, and a section dedicated to the aircraft worker—what he does, and how much he gets for doing it. There are also some very interesting photographs. *Copies may be obtained from Thomas Y. Crowell, 432 Fourth Ave., New York. \$2.00.*

JORDANOFF'S ILLUSTRATED AVIATION DICTIONARY—by Assen Jordanoff. This book contains over 2000 aviation terms. These terms are arranged alphabetically, with each one illustrated with a picture. *Copies may be obtained from Harper & Brothers, 49 East 33rd St., New York. \$3.50.*

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CONGRATULATIONS FROM A.T.

TO Ralph L. Heininger, named general traffic manager of Chicago & Southern Air Lines. His career with Chicago & Southern started in 1937 as district traffic manager in Chicago. He was appointed assistant to Vice President D. D. Walker in 1940 and made acting general traffic manager in May 1942.

Before coming with C&S, Heininger was with W. B. Grace Co., New York, in 1927-28; the Georgian Bay Lines in Chicago in 1933-34, and was manager of the foreign department of Transcontinental & Western Air in New York from 1935 to 1937. He is a graduate of the University of Illinois.



Ralph Heininger

TO Robert T. Phinney, Chicago, named northern division traffic manager for Braniff Airways by Charles E. Beard, vice-president in charge of traffic. His supervision of traffic matters will include Chicago, Kansas City, Wichita, Oklahoma City, Wichita Falls and Amarillo.



Robert T. Phinney

Since April 1939, Phinney has occupied several important positions with Braniff. From January to March 1942, Phinney was assigned to the Fifth Ferrying Group at Hensley Field, Dallas, as civilian assistant

to Colonel T. D. Ferguson. Immediately thereafter he was detailed to foreign service in connection with Braniff Airways' foreign army cargo operation. Returning from foreign duty, he was given the post of Chicago district traffic manager, which position he held until his recent advancement.

TO Jerome V. Roscoe, assistant to Vice President and General Traffic Manager Victor E. Chenea of Pan American Airways, who has just been transferred to the post of acting assistant division manager of the Alaska Division. Roscoe will make his headquarters in Seattle. He has been connected with Pan Am since March 1937, when he became a traffic representative in New York. From January 1942 until last November he was attached to the PAA executive offices as liaison officer to the Air Transport Command. Then he became assistant to Chenea.

At the same time it is announced that J. E. (Joe) Crosson, famous pioneer Alaskan pilot, will resume his post as manager of the Alaska Division after a short period of temporary assignment in the Atlantic Division.

TO Captain Harold L. Knoop, veteran pilot of United Air Lines' Chicago-New York run, named superintendent of flight operations for UAL at Chicago, to serve under Captain Warren D. Williams, superintendent of flight operations for United's eastern division. Captain Knoop began flying as an Army Air Corps cadet in 1924 and subsequently was one of the men who pioneered commercial air transport operations in and out of Chicago. He joined United in 1927 and since has flown 2,380,000 miles.



Capt. H. L. Knoop

TO Robert I. Robinson, for the past three years in charge of public relations in New York for Transcontinental & Western Air, Inc., who has been named TWA's assistant to the general traffic manager. He will leave shortly for Kansas City headquarters to

take up his new duties as assistant to Traffic Manager E. O. Cocke.

Robinson has been with TWA nearly 10 years. A native New Yorker and the son of the late Charles Robinson, noted vaudeville comedian and monologist of his day, he is virtually as well-known among newspapermen and stage, screen and radio people as he is throughout the aviation industry.



Robert Robinson

He attended the Guggenheim School of Aeronautics of New York University, graduating with a B.S. in mechanical engineering and a degree in aeronautical engineering in 1931. He took the U. S. Army Air Corps basic and advanced courses and was commissioned as a second lieutenant in the Air Corps Reserve.

In the Spring of 1931 he undertook a survey, with other students from the Guggenheim School, for National Air Transport, one of the early commercial air lines, through the West and Southwest, to determine the extent of general interest in and use of air transportation. On completion of this survey he joined the old Airlines Consolidated Ticket Offices in New York in the Fall of 1931, leaving there to join TWA as chief clerk in the traffic department on June 1, 1933.

TO Robert R. (Bob) Nadal, Lieutenant (j.g.), USNR, general sales manager for Culver Aircraft Corp., who left his job May 9, for basic training in the Aviation Volunteer Program at Athens, Ga. Officials of Culver Aircraft announced that Lieutenant Nadal is on a leave-of-absence status for the duration.



Robert R. Nadal

When the war is over, he expects to return to his regular sales and promotion duties at Culver.

TO W. C. Deeds, long identified with production supervision in the aircraft industry, who has joined the executive staff of the Duramold division of Fairchild Engine & Airplane Corp., pioneer in the manufacture of plastic-bonded plywood. He will be concerned with production supervision at the New York Duramold plant.



W. C. Deeds

He began his career in the industry in 1926 with Douglas Aircraft Co. at Santa Monica, Calif. He has been supervisor and assistant superintendent for Lockheed at Burbank; superintendent for Loughhead Bros. at Glendale; general supervisor for Douglas; superintendent for Alcor Aircraft Corp. at Oakland; superintendent for Douglas at its El Segundo division; superintendent for Ryan Aeronautical's Aircraft Division at San Diego. He was vice-president of Doak Aircraft in charge of production at Torrance, Calif., and division manager of Kroehler-Doak Aircraft Parts Division of Kroehler Manufacturing Corp. at Inglewood, Calif.

TO William C. Burks, Chicago district traffic manager for Chicago & Southern Air Lines, who has been appointed director of research and planning. In making the announcement Carleton Putnam, President of the company, said Burks would be succeeded by William R. Gillen, New Orleans district traffic manager.

The newly created office of Research and Planning to be established in Chicago on June 1, according to Putnam, will handle all phases of company research and planning activities and will deal directly with an immediate subject of postwar air cargo transportation and the planning of postwar expansion of new routes.

Burks started his career with Chicago & Southern early in 1939 as district traffic manager at Memphis, where he served until the company inaugurated service from Memphis to Houston, Tex. For nearly two years Burks was in charge of the traffic office at Houston and in February of this year was transferred to Chicago as District Traffic Manager.



Air Cargo Between the Americas Up 134 Per Cent Over 1942

Commercial air transportation between the Americas, now fully geared to wartime operations, has been almost doubled over what it was a year ago, it is shown in a summary for the first quarter of 1943, issued by Pan American Airways.

Clippers of Pan American's Eastern fleet, which serve the Caribbean and Central and South America, piled up more than 3,000,000 miles of flight during the first quarter of 1942, an increase of 75 per cent.

Air cargo, moving for the most part under Government priorities, is showing an even greater increase. During March, the *Clippers* flew 248,336 express ton-miles, an increase of 134 per cent over the 105,012 ton-miles flown during the same month of 1942.

Passenger-miles flown by the Eastern division totaled 10,411,604 for March this year, compared to 9,017,293 for March 1942.

The million miles a month now being flown by the inter-American *Clippers* are in addition to the special wartime schedules operated for the U. S. Government, data on which are withheld for security reasons.

American Airlines' Cargo Is Doubled

American Airlines carried 1,779,372 lbs. of air express and 1,996,352 lbs. of mail during April, according to Bradford S. Gibson, district traffic manager in New York.

During April, 1942, 791,850 lbs. of express were flown, and 1,044,444 lbs. of mail. Gain was 124.7 per cent for cargo and 91.1 per cent for mail over the same period in 1942.

For the first four months of 1943 a total of 5,865,372 lbs. of express were carried for a total of 2,905,998,825 pound-miles flown, against 2,783,761 lbs. and 1,389,316,684 pound-miles in 1942's first four months.

Cargo Total Tripled By Trans-Canada Line

Three times as much cargo were carried by Trans-Canada Air Lines in 1943's first quarter as in the first three months of 1942, according to O. T. Larson, vice president.

During the first three months of 1943 mail was more than doubled, being 816,931 lbs. as compared with 384,192. Cargo was more than tripled, the figures being 141,789 lbs. for the three months of this year as compared with 41,672.

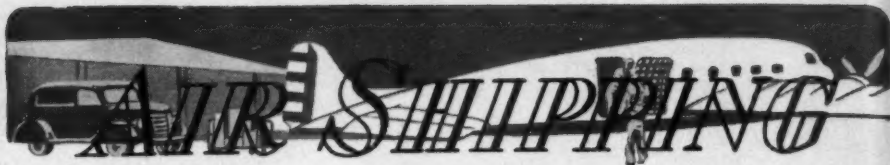
Express carried in March amounted to 46,666 lbs., an increase of 32,602 lbs. over March, 1942. Mail carried amounted to 280,662 lbs., an increase of 145,138 lbs. over March 1942.

Rail-Air Express Up 49.6 Per Cent

Use of combined rail and air express by American business, particularly by shippers not located directly on airline routes, continues to show monthly increases, according to March figures of the air express divisions of Railway Express Agency.

An estimated total of 132,031 air express shipments were handled over the airlines in March. Of these, 34,042 shipments, or 34.7 per cent, were moved in rail-air service. Average revenue per shipment on this rail-air traffic was 40.3 per cent higher than the average revenue of shipments moved exclusively by air.

Gross revenue of this off-airline business, which either originated at or was destined to a non-airport city, or moved part way by rail, increased 125 per cent, while revenue from traffic which moved exclusively by air increased only 33.6 per cent.



International Express and Mail Tables

Express rates quoted are from the U. S. international airport of departure and are based on the latest prevailing tariffs. Shippers are warned, however, that they are subject to change.

Bro—Brownsville, Tex. Gf—Grand Forks, N. D.
Bw—Boston, Mass. Lgs—Los Angeles
Cg—Chicago Mia—Miami
Cub—Cut Bank, Mont. Nyk—New York
Eo—El Paso Sq—San Diego
Fv—Fort Worth Ste—Seattle

International Air Express is subject to two charges: one a charge per pound weight or measurements at carrier's option (200 cu. in. to the pound of weight), the other a charge per \$100 of valuation. The two must be added on any shipment to determine the cost. Neither includes insurance, which may be purchased by the shipper from the carrier or otherwise.

Priorities: The air carriers warn all shippers that express traffic, both U. S. Government and commercial, is so heavy that no guarantee can be given that any shipment will depart on any particular plane unless it en-

joys U. S. priority. Otherwise it will depart, in relation to other shipments, in the order received at the international airport used, subject to wartime limitations. Shippers should forward cargo to international airports as far in advance of desired departure as possible and should communicate via Railway Express Agency, Inc. with the international air carrier as to whether the shipment can be forwarded without priority, as shipments without priority for certain countries are, at present, under embargo. (On cargoes to be shipped via American Export Airlines, Inc., shippers should inquire at their office, Room 920, 25 Broadway, New York.)

International air carriers whose schedules and rates are included here are indicated by the letter following the symbol for the airport:

A—American Airlines.
C—Colonial Air Lines.
E—American Export Airlines.
EA—Express Aero Inter-Americano, S. A.
NE—Northeast Airlines.
NW—Northwest Airlines, Inc.
P—Pan American Airways System and affiliates.
T—Trans-Canada Air Lines.
U—United Air Lines.
W—Western Air Lines

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value		
LATIN-AMERICA LINES					
Antilla, Cuba.....	Mia P	.24	.25	Dly	.10
Antofagasta, Chile.....	Mia P	1.26	.50	M,W,Th,F, Sa	.40
"	Bro P	1.34	.50	Tu,W,Th,F, Su	.40
"	Lgs P	1.95	.50	M,Tu,W,Th, F,Sa	.40
Aracaju, Brazil.....	Mia P	1.26	.50	Su, W	.40
"	Bro P	1.71	.50	M, F	.40
"	Lgs P	2.28	.65	Su, Th	.40
Areia Branca, Brazil....	Mia P	1.24	.50	Su	.40
"	Bro P	1.56	.50	F	.40
"	Lgs P	2.13	.50	Th	.40
Arequipa, Peru.....	Mia P	1.23	.50	Dly	.30
"	Bro P	1.26	.50	Dly	.30
"	Lgs P	1.93	.50	Dly	.30
Arica, Chile.....	Mia P	1.25	.50	M,W,Th,Sa	.40
"	Bro P	1.26	.50	Tu,W,Th,F, Su	.40
"	Lgs P	1.94	.50	M,Tu,W,Th, Sa	.40

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value		
Asuncion, Para.....	Mia P	1.73	.50	Su,F	.40
"	Bro P	1.85	.50	W,F	.40
"	Lgs P	2.43	.65	Tu,Th	.40
Bahia, Brasil.....	"	"	"	"	"
(See Sao Salvador)	"	"	"	"	"
Balboa, Canal Zone....	Mia P	.76	.40	Dly	.15
"	Bro P	.90	.40	Dly	.15
"	Lgs P	1.45	.50	Dly	.15
Baracas, Cuba.....	Mia P	.28	.25	Dly ex Sa	.10
Barcelona, Venezuela....	Mia P	.85	.40	Dly	.25
"	Bro P	1.17	.50	Dly	.25
"	Lgs P	1.78	.50	Dly	.25
Barranquilla, Colombia	"	"	"	"	"
via Kingston.....	Mia P	.61	.40	Su,Tu,W,F	.35
via Balboa.....	Bro P	1.03	.40	Dly	.35
"	Lgs P	1.59	.50	Dly	.35
Bauru, Brasil.....	Mia P	1.58	.60	Su	.40
"	Bro P	1.71	.60	F	.40
"	Lgs P	2.28	.65	Th	.40
Belem, Brasil.....	"	"	"	"	"
(See Para)	"	"	"	"	"

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 1/2 Oz.
		Per Lb.	Per \$100 Value		
Belo-Horizonte, Brazil	Mia P	1.65	.50	Su,M,W,F	.40
"	Bro P	2.13	.50	M,W,F,Su	.40
"	Lgs P	2.69	.65	Su,Tu,Th,F	.40
Buenos Aires, Argentina	Mia P	1.56	.50	Dly	.40
"	Bro P	1.70	.50	Dly	.40
"	Lgs P	2.26	.65	Dly	.40
Calí, Col. via Balboa	Mia P	.89	.40	Dly	.35
"	Bro P	1.03	.40	Dly	.35
"	Lgs P	1.59	.50	Dly	.35
Camaguey, Cuba	Mia P	.26	.25	Dly	.10
Canocim, Brazil	Mia P	1.22	.50		.40
"	Bro P	1.50	.50		.40
"	Lgs P	2.05	.50		.40
Campeche, Mexico	Mia P	.41	.25	Su,W,F	.10
"	Bro P	.51	.40	Dly	.10
"	Lgs P	1.00	.40	Dly	.10
Campo Grande, Brazil	Mia P	1.48	.50	Su,F	.40
"	Bro P	1.61	.50	W,F	.40
"	Lgs P	2.18	.50	Tu,Th	.40
Canavieiras, Brazil	Mia P	1.33	.50	Su,W	.40
"	Bro P	1.81	.50	M,F	.40
"	Lgs P	2.38	.50	Su,Th	.40
Caracas, Venezuela (See La Guaira)					
Caravelas, Brazil	Mia P	1.36	.50	Su,W	.40
"	Bro P	1.85	.50	M,F	.40
"	Lgs P	2.41	.65	Su,Th	.40
Cayenne, Fr. Guiana	Mia P	1.02	.40	Dly	.30
"	Bro P	1.26	.50	Dly	.30
"	Lgs P	1.91	.50	W	.30
Cayo Mambi, Cuba	Mia P	.26	.25	Dly ex Sa	.10
Cazumal, Mexico	Mia P	.55	.40	W,F	.10
"	Bro P	.55	.40	Su,Th	.10
"	Lgs P	1.04	.40	W,Sa	.10
Chidayo, Peru	Mia P	1.11	.50	Dly	.30
"	Bro P	1.19	.50	Dly	.30
"	Lgs P	1.81	.50	Dly	.30
Cienfuegos, Cuba	Mia P	.28	.18	Su,Tu,F	.10
C. del Carmen, Mexico	Mia P	.45	.25	Su,W,F	.10
"	Bro P	.47	.40	Dly	.10
"	Lgs P	.94	.40	Dly	.10
Ciudad Trujillo, D. R.	Mia P	.45	.25	Dly	.10
Cochabamba, Bolivia	Mia P	1.26	.50	W,Sa	.35
"	Bro P	1.35	.50	Tu,F	.35
"	Lgs P	1.95	.50	M,Th	.35
Concepcion, Bolivia	Mia P	1.81	.50	Sa	.35
"	Bro P	1.45	.50	F	.35
"	Lgs P	2.03	.50	Th	.35
Cordoba, Argentina	Mia P	1.49	.50	Dly	.40
"	Bro P	1.63	.50	Dly	.40
"	Lgs P	2.19	.50	Dly	.40
Coro, Venezuela (via Barranquilla)	Mia P	.74	.40	Su,Tu	.25
"	Bro P	1.11	.50	Dly	.25
"	Lgs P	1.69	.50	Dly	.25
Coro, Venezuela (via Maracaibo)	Mia P	.74	.40	M,W,F	.25
Curumba, Brazil	Mia P	1.41	.50	Su,W,F,Sa	.40
"	Bro P	1.59	.50	M,Th	.40
"	Lgs P	2.13	.50	S,W	.40
Cristobal, Canal Zone	Mia P	.76	.40	Dly	.15
"	Bro P	.92	.40	Dly	.15
"	Lgs P	1.46	.50	Dly	.15
Cuenca, Ecuador	Mia P	1.06	.40	Su,W,F	.40
"	Bro P	1.15	.50	Tu,Th,Sa	.40
"	Lgs P	1.76	.50	M,W,F	.40
Curitiba, Brazil (Via Rio)	Mia P	1.60	.50	Su,W,F	.40
"	Bro P	2.00	.50	M,W,F	.40
"	Lgs P	2.58	.65	Su,Tu,Th	.40
David, Panama	Mia P	.82	.40	Dly	.15
"	Bro P	.83	.40	Dly	.15
"	Lgs P	1.38	.50	Dly	.15
Emeraldaes, Ecuador	Mia P	.99	.40	Tu	.20
"	Bro P	1.11	.50	M	.20
"	Lgs P	1.71	.50	Su	.20
Florianopolis, Brazil	Mia P	1.63	.50	Su,M,F	.40
"	Bro P	2.11	.50	W,F,Sa	.40
"	Lgs P	2.68	.65	Tu,Th,F	.40

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 1/2 Oz.
		Per Lb.	Per \$100 Value		
Fort de France, Martinique	Mia P	.71	.40	Sa	.15
"	Bro P	1.16	.50	Sa	.15
"	Lgs P	1.78	.50	Sa	.15
Fortaleza, Brazil (Ceara)	Mia P	1.23	.50	Su,M,Tu,W, Th,Sa	.40
"	Bro P	1.54	.50	Su,M,Tu,Th, F,Sa	.40
"	Lgs P	2.10	.50	M,W,Th,F, Sa	.40
Georgetown, British Guiana	Mia P	.90	.40	Dly	.30
"	Bro P	1.24	.50	Dly	.30
"	Lgs P	1.88	.50	Dly	.30
Guadalupe, Mexico	Bro P	.43	.25	Dly	.10
"	Lgs P	.50	.40	Dly	.10
Guantanamo, Cuba	Mia P	.28	.25	Dly	.10
Guatemala City, Gua.	Mia P	.74	.40	Dly	.12
"	Bro P	.53	.40	Dly	.12
"	Lgs P	1.08	.50	Dly	.12
Guayaquil, Ecuador	Mia P	1.04	.40	Dly	.30
"	Bro P	1.15	.50	Dly	.30
"	Lgs P	1.75	.50	Dly	.30
Havana, Cuba	Mia P	.20	.18	Dly	.10
"	MiaEA	.20	.18	Dly	.10
"	Bro P	.77	.40	Dly	.10
"	Lgs P	.24	.25	Dly	.10
Iguazu Falls, Brazil	Mia P	1.69	.50	Su,F	.40
"	Bro P	1.91	.50	W,F	.40
"	Lgs P	2.48	.65	Tu,Th	.40
Ixtape, Mexico	Mia P	.76	.40	Su,W,F	.10
"	Bro P	.41	.25	Su,M,Tu,W, Th,F	.10
"	Lgs P	.89	.40	Su,M,Tu,W, Th,Sa	.10
Joao Pessoa, Brazil (Cabedello)	Mia P	1.25	.50	W	.40
"	Bro P	1.64	.50	M	.40
"	Lgs P	2.20	.50	Su	.40
Kingston, Jamaica	Mia P	.39	.25	Su,Tu,W,F	.10
"	Bro P	.61	.40	M,W,F,Sa	.25
"	Lgs P	1.15	.50	Dly	.25
La Guaira, Venezuela	Mia P	1.75	.50	Dly	.25
"	Bro P	1.25	.50	Su,Tu,W,Sa	.35
"	Lgs P	1.30	.50	M,Tu,F,Sa	.35
"	Bro P	1.95	.50	Su,M,Th,F	.35
Lima, Peru	Mia P	1.18	.50	Dly	.30
"	Bro P	1.24	.50	Dly	.30
"	Lgs P	1.88	.50	Dly	.30
Loja, Ecuador	Mia P	1.08	.50	Su,W,F	.30
"	Bro P	1.17	.50	Tu,Th,Sa	.30
"	Lgs P	1.78	.50	M,W,F	.30
Maceio, Brazil	Mia P	1.26	.50	Su,M,Tu,W, Th,Sa	.40
"	Bro P	1.68	.50	Su,M,Tu,Th, F,Sa	.40
"	Lgs P	2.24	.50	M,W,Th,F, Sa	.40
Managua, Nicaragua	Mia P	.86	.40	Dly	.12
"	Bro P	.71	.40	Dly	.12
"	Lgs P	1.22	.50	Dly	.12
Manaos, Brazil	Mia P	1.24	.50	Su,W	.40
"	Bro P	1.55	.50	M,F	.40
"	Lgs P	2.13	.50	Su,Th	.40
Manta, Ecuador	Mia P	1.03	.40	Tu,Th,Sa	.30
"	Bro P	1.14	.50	W,F	.30
"	Lgs P	1.74	.50	Tu,Th	.30
Manzanillo, Cuba	Mia P	.28	.25	Dly ex Su	.10
Maracaibo, Venezuela (via Barranquilla)	Mia P	.69	.40	Su,Tu	.25
"	Bro P	1.08	.50	Dly	.25
"	Lgs P	1.66	.50	Dly	.25
Maracaibo, Venezuela (via La Guaira)	Mia P	.69	.40	Tu,Sa	.25
Maturin, Venezuela	Mia P	.89	.40	Dly	.25
"	Bro P	1.19	.50	Dly	.25
"	Lgs P	1.80	.50	Dly	.25
Mazatlan, Mexico	Bro P	.57	.40	Dly	.10
"	Lgs P	.45	.25	Dly	.10
Medellin, Columbia (via Boquilla)	Mia P	1.06	.40	Su,W,F	.35

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value		
Medellin, Columbia... (via Balboa)	Mia P	1.06	.40	Tu, Sa	.35
"	Bro P	1.10	.50	M, Th, F	.35
"	Lgs P	1.65	.50	Su, W, Th, F	.35
Mendoza, Argentina...	Mia P	1.41	.50	M, W, Th, Sa	.40
"	Bro P	1.55	.50	Su, Tu, W, F	.40
"	Lgs P	2.11	.50	M, Tu, Th, Sa	.40
Merida, Mexico...	Mia P	.37	.25	Su, W, F	.10
"	Bro P	.55	.40	Dly	.10
"	Lgs P	1.04	.40	Dly	.10
Mazicali, Mexico...	Mia P	.20	.18	Dly	.10
Mexico City, Mexico...	Mia P	.64	.40	Su, W, F	.10
"	Bro P	.26	.25	Dly	.10
"	Lgs P	.69	.40	Dly	.10
"	Lgs A	.70	.35	Dly	.10
"	Fv A	.42	.25	Dly	.10
"	Eo A	.42	.25	Dly	.10
"	Sq A	.74	.35	Dly	.10
Minatitlan, Mexico...	Mia P	.53	.40	Su, W, F	.10
"	Bro P	.39	.25	Dly	.10
"	Lgs P	.86	.40	Dly	.10
Monterrey, Mexico...	Fv A	.34	.25	Dly	.10
"	Eo A	.34	.25	Dly	.10
"	Lgs A	.62	.35	Dly	.10
"	Sq A	.74	.35	Dly	.10
Montevideo, Uruguay* (See notes below)					
Nassau, Bahamas...	Mia P	.20	.18	Dly ex Su, W	.10
Natal, Brazil...	Mia P	1.25	.50	Su, M, Tu, W, Th, Sa	.40
"	Bro P	1.61	.50	Su, M, Tu, Th, F, Sa	.40
"	Lgs P	2.18	.50	Su, M, W, Th, F, Sa	.40
Oaxaca, Mexico...	Mia P	.73	.40	Su, W, F	.10
"	Bro P	.35	.25	Su, Tu, Th	.10
"	Lgs P	.81	.40	Su, Tu, Th	.10
Oruro, Bolivia...	Mia P	1.26	.50	Su, Tu, W, Sa	.35
"	Bro P	1.33	.50	M, Tu, F, Sa	.35
"	Lgs P	1.95	.50	Su, M, Th, F	.35
Panama City, Panama. (See Balboa, C. Z.)					
Para (Belem), Brasil...	Mia P	1.13	.50	Dly	.40
"	Bro P	1.34	.50	Dly	.40
"	Lgs P	1.95	.50	Dly	.40
Paramaribo, Sur...	Mia P	.97	.40	Dly	.30
"	Bro P	1.25	.50	Dly	.30
"	Lgs P	1.90	.50	Dly	.30
Parnahyba, Brasil...	Mia P	1.21	.50	Su, W	.40
"	Bro P	1.48	.50	M, F	.40
"	Lgs P	2.04	.50	Su, Th	.40
Point a Pitre, Guadeloupe...	Mia P	.66	.40	Sa	.15
"	Bro P	1.14	.50	Sa	.15
"	Lgs P	1.74	.50	Sa	.15
Port au Prince, Haiti...	Mia P	.37	.25	Dly	.10
Port of Spain, Trinidad...	Mia P	.79	.40	Dly	.15
"	Bro P	1.20	.50	Dly	.15
"	Lgs P	1.81	.50	Dly	.15
Porto Alegre, Brasil...	Mia P	1.70	.50	Su, M, W, F	.15
"	Bro P	2.19	.50	M, W, F, Sa	.15
"	Lgs P	2.75	.65	Su, Tu, Th, F	.15
Puerto Suarez, Bolivia...	Mia P	1.41	.50	W, Sa	.25
"	Bro P	1.56	.50	Tu, F	.25
"	Lgs P	2.13	.50	M, Th	.25
Preston, Cuba...	Mia P	.24	.25	Dly ex Sa	.10
Quito, Ecuador...	Mia P	.97	.40	Dly	.30
"	Bro P	1.09	.50	Dly	.30
"	Lgs P	1.68	.50	Dly	.30
Recife (Pernambuco), Brasil...	Mia P	1.29	.50	Su, M, Tu, W, Th, Sa	.40
"	Bro P	1.65	.50	Su, M, Tu, W, Th, Sa	.40
"	Lgs P	2.21	.50	Su, M, Tu, W, Th, F, Sa	.40

* Shipments for Montevideo must be assessed rates to Buenos Aires plus 55c per 2 lbs. or fraction thereof (min. 55c) for forwarding by other carrier to Montevideo, plus \$1.10 per shipment transfer charge at Buenos Aires.

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value		
Rio de Janeiro...	Mia P	1.50	.50	Su, M, W, F	.40
"	Bro P	1.98	.50	M, W, F, Sa	.40
"	Lgs P	2.54	.65	Su, Tu, Th, F	.40
Robore, Bolivia...	Mia P	1.35	.50	Sa	.35
"	Bro P	1.51	.50	F	.35
"	Lgs P	2.08	.50	Th	.35
Salinas, Ecuador...	Mia P	1.05	.40	Th, Sa	.30
"	Bro P	1.15	.50	W, F	.30
"	Lgs P	1.75	.50	Tu, Th	.30
Salta, Argentina...	Mia P	1.30	.50	Su, Tu, F	.40
"	Bro P	1.45	.50	M, Th, Sa	.40
"	Lgs P	2.03	.50	Su, W, F	.40
San Ignacio, Bolivia...	Mia P	1.33	.50	Sa	.25
"	Bro P	1.48	.50	F	.25
"	Lgs P	2.04	.50	Th	.25
San Jose, Bolivia...	Mia P	1.35	.50	Sa	.25
"	Bro P	1.50	.50	F	.25
"	Lgs P	2.08	.50	Th	.25
San Jose, Costa Rica...	Mia P	.89	.40	Dly	.15
"	Bro P	.76	.40	Dly	.15
"	Lgs P	1.31	.50	Dly	.15
San Juan, Puerto Rico...	Mia P	.53	.40	Dly	.10
San Salvador, El Salvador...	Mia P	.79	.40	Dly	.12
"	Bro P	.61	.40	Dly	.12
"	Lgs P	1.14	.50	Dly	.12
Santa Cruz, Bolivia...	Mia P	1.28	.50	W, Sa	.35
"	Bro P	1.43	.50	Tu, F	.35
"	Lgs P	1.99	.50	M, Th	.35
Santiago, Chile...	Mia P	1.38	.50	M, W, Th, Sa	.40
"	Bro P	1.51	.50	Su, Tu, W, F	.40
"	Lgs P	2.08	.50	M, Tu, Th, Sa	.40
Santiago, Cuba...	Mia P	.26	.25	Dly	.10
Sao Luis, Brazil...	Mia P	1.19	.50	Su, M, Tu, W, Th, Sa	.40
"	Bro P	1.43	.50	Su, M, Tu, Th, F, Sa	.40
"	Lgs P	1.99	.50	Su, M, W, Th, F, Sa	.40
Sao Paulo, Brasil... (via Rio)	Mia P	1.55	.50	Su, M, W, F	.40
"	Bro P	2.04	.50	M, W, F, Sa	.40
"	Lgs P	2.60	.65	Su, Tu, Th, F	.40
Sao Salvador, Brazil... (Bahia)	Mia P	1.28	.50	Su, M, Tu, W, Th, Sa	.40
"	Bro P	1.76	.50	Su, M, Tu, Th, F, Sa	.40
"	Lgs P	2.33	.65	Su, M, W, Th, F, Sa	.40
St. Johns, Antigua, British West Indies...	Mia P	.64	.40	Su, M, W, F, Sa	.15
"	Bro P	1.13	.50	Su, M, W, F, Sa	.15
"	Lgs P	1.73	.50	Su, Tu, Th, Sa	.15
St. Thomas, V. I.	Mia P	.57	.40	Sa	.10
"	Bro P	1.10	.50	Su	.10
"	Lgs P	1.68	.50	Sa	.10
Talara, Peru...	Mia P	1.08	.50	Dly	.30
"	Bro P	1.17	.50	Dly	.30
"	Lgs P	1.79	.50	Dly	.30
Tampico, Mexico...	Bro P	.20	.18	Dly	.10
"	Lgs P	.81	.40	Dly	.10
Tapachula, Mexico...	Mia P	.74	.40	Su, W, F	.10
"	Bro P	.53	.40	Dly	.10
"	Lgs P	1.02	.40	Dly	.10
Tegucigalpa, Honduras...	Mia P	.82	.40	Dly	.12
"	Bro P	.68	.40	Dly	.12
"	Lgs P	1.18	.50	Dly	.12
Tres Lagoas, Brazil...	Mia P	1.83	.50	Su	.40
"	Bro P	1.66	.50	F	.40
"	Lgs P	2.23	.50	Th	.40
Tucuman, Argentina...	Mia P	1.34	.50	Su, Tu, F	.40
"	Bro P	1.49	.50	M, Th, Sa	.40
"	Lgs P	2.05	.50	Su, W, F	.40
Turbo, Columbia... (via Barranquilla)	Mia P	1.06	.40	Su, Tu, W, F	.35
Turbo, Columbia... (via Balboa, C. Z.)	Mia P	1.06	.40	Sa	.35
"	Bro P	1.10	.50	M, Th, F	.35
"	Lgs P	1.65	.50	Su, W, Th	.35
Tuxpan, Mexico...	Bro P	.20	.18	Dly	.10
"	Lgs P	.53	.40	Dly	.10

Destination	U. S. Gateway & Airlines	RATES		Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value		
Tuxtla, Gutierrez, Mexico	Mia P	.81	.40	Su, W, F	.10
"	Bro P	.45	.25	Su, Tu, Th	.10
"	Lgs P	.93	.40	Su, Tu, Th	.10
Uyuni, Bolivia	Mia P	1.26	.50	Su, Tu	.35
"	Bro P	1.38	.50	M, Sa	.35
"	Lgs P	1.95	.50	Su, F	.35
Veracruz, Mexico	Mia P	.67	.40	Su, W, F	.10
"	Bro P	.33	.25	Dly	.10
"	Lgs P	.79	.40	Dly	.10
Victoria, Brazil	Mia P	1.41	.50	Su, W	.40
"	Bro P	1.90	.50	M, F	.40
"	Lgs P	2.46	.65	Su, Th	.40
Villahermosa, Mexico	Mia P	.49	.40	Su, W, F	.10
"	Bro P	.43	.25	Dly	.10
"	Lgs P	.90	.40	Dly	.10

ATLANTIC LINES

Botwood, Newfoundland	Nyk P	.81	.40	Twice wk	.15
England via Foynes*	Nyk E	(Rates on Application)			.30
"	(Rates on Application)				.30
Foynes, Eire via Botwood	Nyk P	1.78	.50	Twice wk	.30
" " via Lisbon	Nyk P	2.00	.50	Fortnightly	.30
"	Nyk E	1.78	.50		.30
Hamilton, Bermuda	Nyk F	.55	.25	Twice wk	.10
Horta, Azores	Nyk P	1.70	.40	Week'y	.30
Lisbon, Portugal	Nyk P	2.00	.50	Week'y	.30
Scotland via Foynes*	Nyk E	(Rates on Application)			.30
"	(Rates on Application)				.30
Shediac, N. B.	Nyk P	.51	.25	Twice wk	.06
Wales via Foynes*	Nyk E	(Rates on Application)			.30
"	(Rates on Application)				.30

ALASKA LINES

Bethel, Alaska	Ste P	1.11	.40	Schedules not published	.06
Fairbanks, "	Ste P	.90	.40	"	.06
Flat, "	Ste P	1.05	.40	"	.06
Galena, "	Ste P	1.00	.40	"	.06
Golovin, "	Ste P	1.08	.40	Nov. 1-Apr. 30	.06
Hot Springs, "	Ste P	.92	.40	Nov. 1-Apr. 30	.06
Juneau, "	Ste P	.56	.25	Schedules not published	.06

"Shipping Executive," quoted by the New York Journal-American without further identification: "We don't like the prospect too much, but we must admit that so many big planes will be on the market after the war, travel by air to Europe and other countries (sic) may even be cheaper than ocean liner rates."

Destination	U. S. Gateway & Airlines	RATES		Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value		
McGrath, "	Ste P	1.00	.40	"	.06
Nome, "	Ste P	1.11	.40	"	.06
Nulato, "	Ste P	1.03	.40	Nov. 1-Apr. 30	.06
Ophir, "	Ste P	1.03	.40	Schedules not published	.06
"	"	"	"	"	"
Ruby, "	Ste P	.99	.40	"	.06
Tanana, "	Ste P	.95	.40	Nov. 1-Apr. 30	.06
Whitehorse, Canada	Ste P	.66	.40	Schedules not published	.06

CANADIAN LINES

Calgary, Alb.	Nyk T	1.02	†	Dly	.06
Edmonton, Alb.	Nyk T	1.06	†	Dly	.06
Halifax, N. S.	Nyk T	.31	†	Dly	.06
Lethbridge, Alb.	Nyk T	.44	†	Dly	.06
"	CubW	.04	†	Dly	.06
London, Ont.	Nyk T	.22	†	Dly	.06
Montreal, Que.	Nyk C	.12	†	Dly	.06
"	Nyk T	.12	†	Dly	.06
North Bay, Ont.	Nyk T	.27	†	Dly	.06
Ottawa, Ont.	Nyk T	.18	†	Dly	.06
Regina, Sask.	Nyk T	.76	†	Dly	.06
St. John, N. B.	Nyk T	.31	†	Dly	.06
St. Johns, N. F.	Nyk T	.55	†	Dly	.06
Sydney, N. S.	Nyk T	.36	†	Dly	.06
Toronto, Ont.	Nyk A	.16	†	Dly	.06
"	Nyk T	.16	†	Dly	.06
Vancouver, B. C.	Ste U	.08	†	Dly	.06
"	Nyk T	.56	†	Dly	.06
Windsor, Ont.	Nyk A	.20	†	Dly	.06
"	Cg A	.12	†	Dly	.06
"	Nyk T	.20	†	Dly	.06
Winnipeg, Man.	GINW	.04	†	Dly	.06
"	Nyk T	.60	†	Dly	.06

* British Overseas Airways Corp. carries from Foynes, Ireland to destinations in England, Scotland, and Wales.

† Canadian air express is carried on the same basis as air express within the U. S.: \$50 declared value free; excess charged at 10 cents per \$100 or fraction thereof.

NOTE: The per pound rate shown in this column is based on the average package weighing 25 lbs., i.e.: A 1 lb. package from New York to Ontario would cost \$1-25 lbs. \$4. Average cost per pound: 16 cents.

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Air Cargo Is Local Before It Is Global

In the midst of an era when so many leaders are thinking—and urging everybody else to think—in global terms, it's a sound procedure to come down to earth now and then.

We think we'll help you in that direction by publishing in this issue the thought-provoking piece by RALPH S. DAMON, president of Republican Aviation Corp., "You, Too, Mr. Shipper, Have a Stake in Postwar Air Planning."

And for a shorter expression of what we mean—and one that's perhaps more cogently expressed than we ourselves could do it, we turn our editorial desk over to Braniff Airways' President T. E. BRANIFF:

"The swift expansion of our nationwide air transportation system into a coordinated international operation has initiated much thought and discussion concerning the need for postwar air transportation plans. Understandably, major emphasis has thus far been placed on the global phase of such plans. This is a natural tendency . . .

"The great interest in international air transportation, however, should not eclipse our local interest. Following the peace, improvements . . . tested in the furnace of war can make air transportation available to thousands of communities and millions of Americans not now affected. And we must not forget that *it is along the Main Streets of these friendly communities . . . of YOUR community and the hundreds like it throughout the land . . . that the economic backbone of our country is formed.*

"Though our national interest is today focused principally on a map of the globe, tomorrow our interests will again be much closer home. Any postwar air plan must be *both local and global in scope . . . must bring benefits to the average folks on the many Main Streets of our country just as it brings benefits to nations and hemispheres.* Whether you and I live in a village or a metropolis, there must be no limit to the journeys either of us can take . . . no limit to the markets we can seek for our products nor the sources we can tap for our raw materials.

"Properly guided, air transportation can enrich our lives and our communities manyfold. It can become an integral part of our day-to-day activities at prices all can afford. It can speed commerce, making available to merchants the time-saving services of *air freight, air express, air parcel-post and air mail.* It can have far-reaching, cost-lessening effects upon merchandising and distribution, eliminating for all time the discriminatory transportation rates under which many areas now suffer. It can unite trade territories into completely cooperative economic units, yet at the same time make accessible areas now remote.

"It's new and fascinating for all of us to think, as we are now doing, in *global* terms. Think we must for the future peace and prosperity of the world . . . but by the same token we must not forget that for John Jones, *the globe starts on his Main Street—a trip to Shangri-la starts when he steps outside his front door.*"

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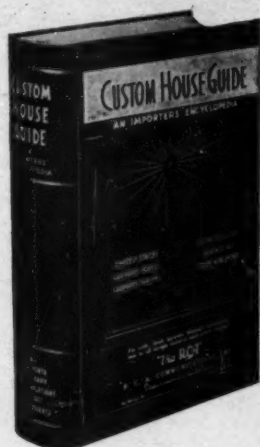
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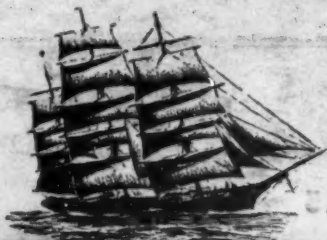
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